

**IMMUNO-ONCOLOGY
LUNG CANCER**

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Immuno-oncology. Lung cancer.

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Why we wrote this book?

Cancer patients often have difficulties to understand what is happening to them, why they got sick, why cancer leads to these or other complications and why treatment they receive is this and not otherwise. A doctor usually has no time to explain everything to the patient in detail: traffic of patients does not leave the possibility for long talks to everyone.

To answer questions that arise in the course of treatment, the non-profit partnership "Equal Right to Life" and the interregional public movement "Movement Against Cancer" with the support of doctors, psychologists, lawyers as well as patients who have beat cancer launched a series of free books "Patients' School".

This issue is dedicated to lung cancer and a modern type of therapy — immuno-oncology. We will explain how and why a tumor in the lungs develops, talk about different treatments for this type of cancer. We will also advice how to make up one's mind for treatment and do not give up and what to do if the needed free medicine is not provided.

We hope that this book will be useful to you!

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Diagnosis

The question "Why me?" is normal reaction of the human psyche to the real threat to life. Medicine does not give a precise answer to this question. It really can happen to anyone. There is no such cause in the world that results in cancer in 100 out of 100 cases. But there are factors that increase the risk of lung cancer.

Why did it happen to me?

Factors that might cause cancer

In 80 % of cases the cause of disease is smoking. All smokers know that their addiction can go bad, but not everyone can cope with the addiction. That is why nicotine is the worst drug. Moreover, smokers repel horrible thoughts and retell each other stories about one's grandfather who smoked strong filterless "Belomor" cigarettes and lived until 100, and was perfectly healthy and happy. Such cases happen. Not all smokers fall ill with lung cancer or, at least, not all of them reach the age to develop cancer because they can die due to other disease. Of course, all smokers hope to "escape", but, unfortunately, not all succeed in it.

Allen Carr, the most famous campaigner against smoking and author of the book "The easiest way to quit smoking", died of lung cancer. He smoked three packs a day for 20 years and was able to give up smoking after that. However, his health was strongly harmed. When he learned about the diagnosis he said that his story should give people an extra incentive to stop smoking. Through his book, more than 10 million people worldwide got rid of nicotine addiction.

But there are people among lung cancer patients who took care of health, kept to a diet, did not smoke, did not drink and I was jogging in the morning. They feel particularly cheated. How could this happen?!

Lung cancer can be caused by other factors as well. Hereditary predisposition or occupational hazards — working in contact with asbestos dust, heavy metals or chloromethyl ether. Sometimes tumor develops on the background of chronic inflammation or pulmonary fibrosis.

However, sometimes nobody can name the exact cause of the disease.

Some patients begin to remember his/her life and found something in the past for what they "deserve punishment". They perceive their illness as a curse or vindictory punishment. Such mindset intervenes with comprehensive treatment and recovery. No one "deserves" cancer, even criminals. You shall not go this way.

We sympathize with each patient and we wish a full recovery! It does not matter what caused your illness. The tumor has developed and treatment is needed. This is what to focus on and to make all efforts to combat the disease.

What is this disease?

Types of lung cancer

Cancer develops step by step and the first step is a mutation in the cells of an affected organ.

Typically, a cell lives a short life — it appears, divides and dies. Programmed cell death is called apoptosis. Every second, thousands of cells die. Others appear as a result of division so that in their time to die too. But sometimes the self-destruction program of a cell fails. And it begins to divide, and then divide again, and this process does not stop. The sad irony is that, in its essence, cancer means immortality. The cell continues to divide and more and more cells that emerged but failed to die form a tumor. The tumor grows and develops, it turns into a new "organ", develops its own blood vessels. It is able to ingress into circulatory and lymphatic systems. In this way "broken cells" conquer the body and poison it.

It is believed that cancer develops very quickly. People often say: "He/she "vanished" in two months — this is cancer". Actually all these stories are about patients who were diagnosed at a late stage. They had cancer for a long time, but did not know about it. Sometimes it takes 5-8 years from the malignant cell appearance to the development of a tumor 1 cm in size. Up to 4 years will pass from the appearance of 1 cm tumor to the fatal outcome in the absence of treatment. But this is not always true. Most often things are developing more rapidly.

Cell of any organ can "broke". This leads to different cancers — skin cancer, blood cancer, bone tumors, tumors of central nervous system and so on. Often cancer develops in sites, where there was some kind of disease, and the cells are changed. For example, stomach cancer may develop after gastritis or gastric ulcer. Smoker's lungs suffer from carcinogenic tar and nicotine which provoke the development of cancer.

There are several types of lung cancer depending on what cell mutated first and where the tumor is located.

Lung cancer can affect any part of the lungs. However, it is believed that in 90-95% of cases the tumor grows from the epithelium in large and medium airways — bronchi and bronchioles. That is why lung cancer is sometimes called bronchogenic cancer or bronchogenic carcinoma.

Depending on the location of appearance, lung cancer is classified as central, peripheral and massive (mixed).

Lung cancer is also classified into 2 basic types: small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC). NSCLC is divided into more than 5 subtypes. Each subtype has its own clinical prognosis and different approaches

to the treatment. This classification is based on cytogenetic characteristics of tumor cells; the exact determination of tumor type is important to select the correct treatment. For this purpose your doctor takes a tumor or its part for histopathological examination and other complex immunohistochemical analyses in order to find out the type of cancer using laboratory microscope.

Small cell lung cancer is diagnosed in about 20 % of all cases. This type is the most aggressive and rapidly growing. According to modern views, this type of cancer belongs to neuroendocrine cancers.

Non-small cell lung cancer is the most common type of cancer. It accounts for about 80 % of cases of lung cancer. Based on the name of cells found in the tumor, NSCLC can be divided into three main subtypes:

- adenocarcinoma (glandular cancer);
- squamous cell carcinoma;
- large-cell carcinoma.

There are also combinations of different NSCLC types.

There are other types of tumors that can develop in the lungs, but they are much rarer than SCLC or NSCLC and constitute 5-10 percent of all lung cancers.

Symptoms

For many patients their path to an accurate diagnosis is rather long. It is best to treat cancer early, but the disease shows no symptoms while the tumor is small. A tumor can grow over the years and even spread to other organs, but patient feels healthy and does not know about illness. Moreover, even when early symptoms manifest, they are often overlooked by patients and doctors who attribute the below listed symptoms to cold, excessive fatigue or smokers cough:

- sporadic cough;
- fatigue;

- loss of appetite;
- rapid weight loss;
- shortness of breath;
- at more advanced stages — coughed blood;
- at advanced stages comorbidities may appear, for example, bronchitis or pneumonia;
- at advanced stages chest pain may appear: constant pain, pain during inspiration or when coughing.



Patients do not usually visit a doctor with a slight cough; they opt to buy lozenge or syrup at pharmacy. Even if symptoms of acute disease appear, for example, lung inflammation, first contact physicians do not suspect cancer and do not refer a patient to additional examinations. Sometimes a person is hospitalized several times a year with pneumonia, receives treatment with antibiotics, getting better for a while but then falls ill again. Only comprehensive examinations, such as computed tomography or positron emission tomography, later reveal that the patient has lung cancer.

It also happens that a patient first of all begins to feel discomfort caused by metastases in other organs and systems. Then such patient visits a specialized doctor, without a second thought these symptoms may be due to cancer. As a result, they lose time wasting it for wrong diagnosis and treatment.

Often doctors find tumors in the lungs, which are metastases of primary cancer of some other organ. This is determined by biopsy — such tumors consist not of lung cells, but, for example, of cells from breast or stomach. This is because tumor cells, as we already mentioned above, can spread from any organ throughout the body. They travel through the bloodstream, lymphatic system or invade from nearby organs. If this is the case the diagnosis is not "lung cancer", but metastatic cancer of the relevant organ and the treatment will be appropriate.

There are several stages of lung cancer development (this applies to any other cancer as well):

- preclinical stage — time interval from the appearance of cancer cells to the moment when tumor can be seen by CT;**
- asymptomatic stage — there are no symptoms, but during preventive examination a small tumor can be already seen;**
- clinical stage — early symptoms of lung cancer.**

Diagnostics

If a doctor suspects lung cancer, first of all he or she refers a patient to computer tomography (CT) of the chest, because on a simple X-ray image tumor can be overlooked.

This study is carried out to detect both primary lung tumors and metastatic lesions. CT is carried out with the obligatory intravenous contrast.

Magnetic resonance imaging (MRI) is used when it is needed to identify metastases in bones or brain. MRI provides fairly detailed high-resolution images making it possible to detect the smallest structural changes in organs and tissues. However, MRI has contraindications such as the presence of pacemakers, metal implants, artificial heart valves and some other.

Positron emission tomography (PET) measures the metabolic activity and function of tissues. It is well known that metabolism in the tumor tissue is sufficiently increased. PET is a special imaging technique using short-lived radioactive substances. PET provides three-dimensional images of internal organs. PET allows the identification of specific types of cells within the tumor and helps to identify the active tumor growth. PET can also be combined with CT in a technique called PET-CT. PET-CT much more accurately determines tumor stage than PET only.

Cytological examination of sputum under a microscope is the simplest method of diagnosis. This is the cheapest and risk-free method of diagnosis. But the accuracy of this method is low because tumor cells are not always present in the sputum even if lung cancer is present.

Bronchoscopy is a visual inspection of the respiratory tract using a thin fiber optic probe. It's like gastroscopy, but in this case bronchial tubes are studied rather than stomach. During the procedure, the doctor can nip off a piece of the tumor and sends it for cytological examination. Bronchoscopy can be unpleasant for the patient and often performed under general anesthesia.

In order to obtain cells from the tumor in the lung core-biopsy (fine-needle aspiration biopsy) can also be used. If there is no other way to reach the tumor than the doctor makes a puncture through the skin of the chest wall under local anesthesia and under the CT control use special needle to reach for suspicious site in the lung. Then, a column of the tumor tissue is sucked into the syringe and sent for cytological examination.

In some cases, malignant tumor affects pleura (lining tissue in the lungs). This leads to an accumulation of fluid in the space between the lung and the thoracic cavity wall (pleural effusion). Sampling this liquid using a fine needle (known as thoracentesis or pleural puncture) can detect cancer cells and make a diagnosis.

What are my chances?

Not any doctor can predict with absolute certainty how your treatment will proceed and what will be the outcome. The course of disease, the response to drugs and the success of surgery and therapy — all this is very individual. There are no two identical cancers.

But there are stages of the disease and it is an objective factor. Stages are used to describe how much the tumor has grown and how far the process progressed.

At an early stage, the treatment is usually successful, but at an advanced stage there are much less chances to be cured. However, modern treatment significantly prolongs life and improves its quality. A patient can live for years, provided that he or she regularly undergoes treatment. In this case cancer is regarded as a chronic disease, and modern treatments can save patient's life.

Cancer stage determination includes evaluation of tumor size and its spread to surrounding tissues and the presence or absence of metastases in lymph node or other organs. Stage determination is important to choose the correct treatment.

Stage I. Small tumor or tumor less than 3 cm, without affecting pleura and regional lymph nodes, without distant metastases.

Stage II. Tumor with the same parameters as stage I, but with metastases in the bronchial lymph nodes.

Stage IIIa. Tumor of any size with the involvement of the visceral pleura, chest wall or mediastinal pleura and (or) metastases in the bronchial and mediastinal lymph nodes on the same side of the chest.

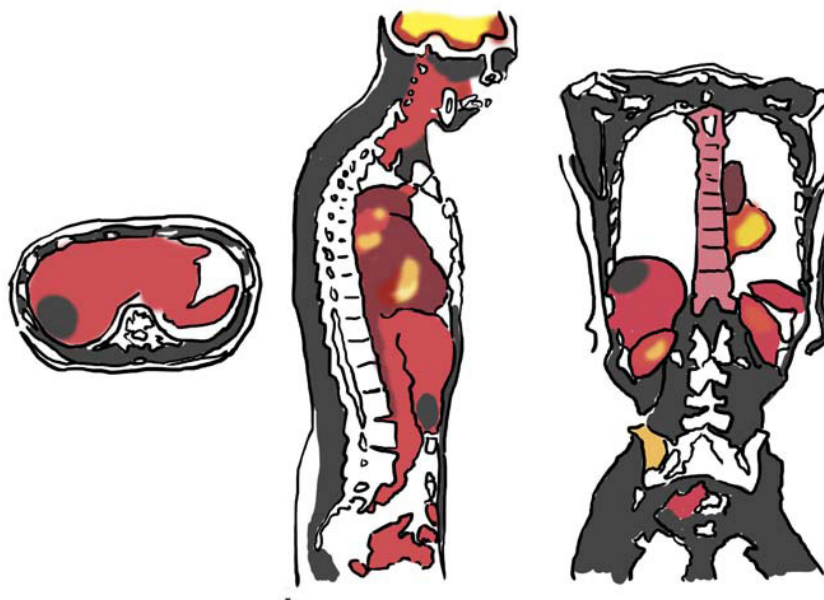
Stage IIIb. Tumor of any size that has spread to mediastinal organs (vessels, esophagus, spine, heart) with possible metastasis in bronchopulmonary lymph nodes on the opposite side, mediastinal lymph nodes or supraclavicular lymph nodes.

Stage IV. Presence of distant metastases.

Stage is determined once at diagnosis and then is not changed even if the tumor shrinks or the patient goes into remission, or, conversely, if the disease progresses.

What is metastasis?

Tumor growth and dissemination into the blood stream or lymphatic system, formation of tumor's own vessels will provoke the development of more and more secondary tumors and metastases. The process of "damaging" of new organs by the disease is called the metastatic process. Cancer spreads inside the

**Fig. 1**

body through the bloodstream and lymphatic system and grows to adjacent organs, large vessels, for example, to the pericardium. Distant metastatic tumors may be found in any organ, for example, in the brain or adrenal glands.

Cancer may produce metastases early — even if the primary tumor is only few millimeters in size. This is particularly true for lung cancer because this organ has a lot of blood vessels and the tumor disseminates rapidly into the bloodstream and can spread throughout the body. Sometimes secondary tumors are detected at the time of diagnosis, sometimes during treatment, some may appear years later.

Treatment of metastatic cancer is planned in a way so that to destroy all secondary tumors. For this purpose, systemic drug treatment is used which affects cancer cells throughout the body, as well as local treatment, for example, teletherapy.

How to make peace with the diagnosis and make up your mind for treatment

Cancer diagnosis is a shock for every cancer patient. Many people cannot believe it's really happening to them. Especially, if the tumor is detected at an early stage, when no symptoms of the disease are present. Someone falls into despair and begins to hate the whole world. Panic, fear of death, despair and hopelessness — almost all patients come through these conditions. This is normal and does not mean that you are weak or cannot pull yourself together.

Fear is often fueled by the fact that a patient and his or her family know very little about the disease. What they know is scary and awful. Information from the Internet does not add optimism. Therefore, it is important to get accurate information about the disease and methods of treatment. After all, making up mind to fight the disease is something a patient has to aim at.

The initial reaction will subside, and it is more important what will happen next. You must try not to skulk in a corner, do not give up but go ahead to recovery. You need to give yourself some time to recognize the problem. And then begin to solve it. It is called "acceptance of the disease".

The worst option is avoiding the problem, when after learning the diagnosis the patient fails to believe the doctor, leaves hospital and continues living without saying a word to anyone. Meanwhile, the tumor progresses, grows, and when the patient becomes very ill and relatives notice something wrong — at this stage it is much more difficult to choose effective treatment.

Sometimes it happens that the diagnosis is made early, when the treatment can be most successful and the prognosis is very good, but a patient says "I have a lot to do now, my son/daughter is passing exams or overflow at work or mother is sick and so on. Then the patient disappears for a long time. When he or she returns to doctors the stage has already changed. The prognosis becomes worse.

Of course, the disease turns our whole life upside down. Indeed, the diagnosis invalidates all previous meanings. Yesterday's values and goals fade — what you need now is not to prepare a child for school or write a report or save money for car/vacation/phone/clothes, but struggle for life. It is important not to lose yourself because of the loss of former interests. Do not fall into despair; do not lock yourself up into your disease. Although this is also normal and most people react exactly this way to the diagnosis of cancer.

In most cases it is very difficult or even impossible to cope with stress, depression and fear without professional help. In countries with well-developed psychological care system one can hardly imagine cancer patients' treatment without mandatory consultation of psychologist and psychotherapist. In Russia, we are not in a habit of seeking the help of a psychotherapist and therefore we are more distressed in difficult periods in life. However, we already have highly experienced and competent psychologists who specialize on aid to cancer patients, who may help a patient to cope with emotions and make up mind for treatment.

You need psychological aid if you have:

- sleep disturbances for several days in a row;**
- serial panic attacks;**
- tremor;**
- stomach problems;**
- pulse quickening without load;**
- sudden mood swings;**
- cases of impaired breathing.**

Psychotherapist will choose medications (considering treatment you already receive) in order to stabilize your condition. You will be offered individual or group psychological training. Psychotherapist will also teach you to use



techniques which will help you to cope with panic attacks. Ultimately, he or she will help you to accept the disease, reduce anxiety, set yourself up for treatment and discover new meanings in life that will become especially valuable for you.

In order not lose yourself into the disease and do not make it the only meaning of your life you must follow the simple rules. During treatment and rehabilitation try to take care of yourself, no matter how hard is it. This is necessary primarily to maintain a decent quality of life. Do not let yourself to claim victimhood and limit your life.

Return to work after treatment or trying a new “can-do” occupation serves the same purpose. You also have to maintain relationships with people and do not lose emotional connection with them. Without loved ones we will certainly dissolve in ourselves and our illness.

How to tell family about this?

The best option is to tell the truth. This first step determines how your relationships with family will develop in the course of treatment and rehabilitation.

Relatives need to understand what happens to you, know how you feel so that they can help you and adapt themselves to this. For them, take our word, all this is a shock not less than for you!

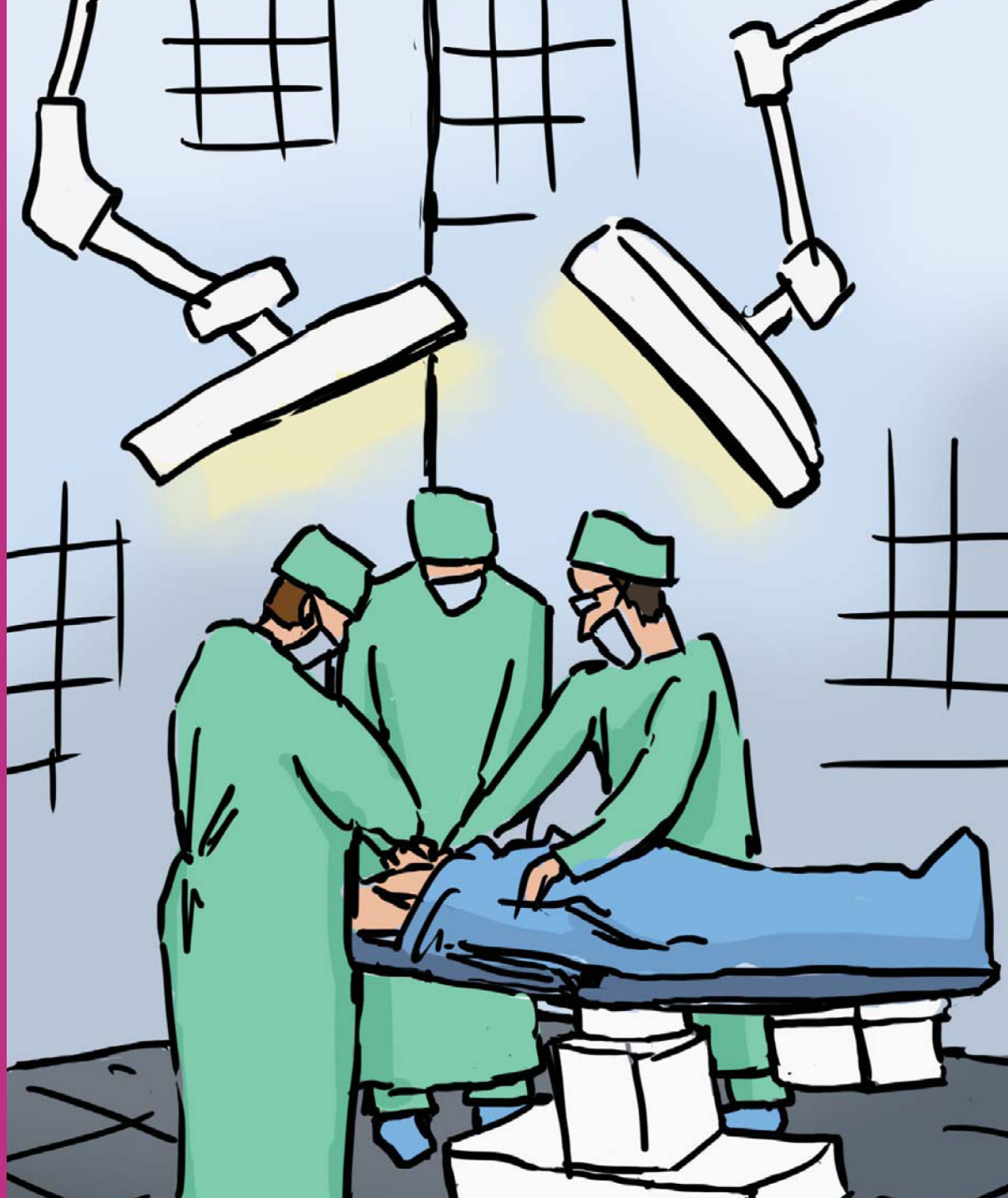
By trying to protect your family, friends and children of your problem, you will not make them good but only pull away from them. Cancer is a hard stage of life for you and your loved ones. After passing this stage apart, you will unlikely be able to get closer again.

Family certainly wants to help and support you, find words of support. So be honest with them, do not push aside and let them help. If you maintain trust relationship in your family, it's better to go to the doctor with someone of

relatives, to feel support and to ask troubling questions to your doctor. This will allow you to start solving the problem together.

Be sure to talk to your children, even if they are still young. After all, they will notice that you are sick and feel that you're scared and sad. If you try to hide what's going on, they could be frightened. For them it would be a more severe trauma because they would experience their fear and suspicion alone instead of together with you.

There is another thing that exactly needs to be done and it depends largely on you — you all must try not to allow your condition become the cult in your family. Cults do not unite people. They oppress and destroy. Do not deny your loved ones the right to have fun, to be successful at work, to feel their own health and happiness. They worry about you, support and love you, so do not be angry if your son invites the girl to the restaurant or your husband wants to go to drink beer with friends and watch football. They need energy, including for taking care of you.



Surgery

Not all patients are eligible for surgery for lung cancer. Surgery is usually used to remove non-small cell lung cancer with small tumors which has not spread to other organs. With modern scientific positions, after removal of tumor at an early stage the adjuvant (preventive) chemotherapy will be required.

What to wait of surgery?

There are two main types of lung cancer surgery — lobectomy (removal of lung lobe) and pneumonectomy (removal of the entire lung). The choice will depend on the size and location of the tumor. Surgery is preceded by PET-CT or mediastinoscopy (examination of mediastinum and biopsy from suspicious lymph nodes with the help of endoscope). Another modern method is transbronchial biopsy of lymph node, which is performed using bronchoscope with an ultrasonic probe.

It is obvious that lung surgery is indicated only for patients without other severe disease of the respiratory system.

Also, before surgery it is strongly recommended to get a second opinion of an oncologist, say, from other medical institution and to learn about all the advantages and disadvantages of the planned treatment.

Preparation of patients includes general strengthening — adequate nutrition rich in proteins and vitamins, anti-inflammatory therapy in the form of antibiotics and sulfanilamide therapy, as well as local administration of antibiotics through bronchoscope (therapeutic bronchoscopy), prescribing of tonic cardiovascular drugs and therapeutic exercises, especially respiratory ones.

In some cases, surgery may be contraindicated for the patient.

For example, if the disease is already at a very advanced stage or if the patient has a concomitant cardiac pathology, disease of nervous system or kidneys, or he or she is over 75 years old.

Lung comorbidities are other no less important contraindications. For example, such comorbidities include pulmonary emphysema or coronary forms of atherosclerosis with cardiovascular insufficiency. In such cases, surgery cannot be performed.

Surgery is an important step, before making the decision one should carefully weigh the pros and cons. Individual approach by the oncologist is a crucial aspect. This approach will increase the chances for cure or long-term remission.

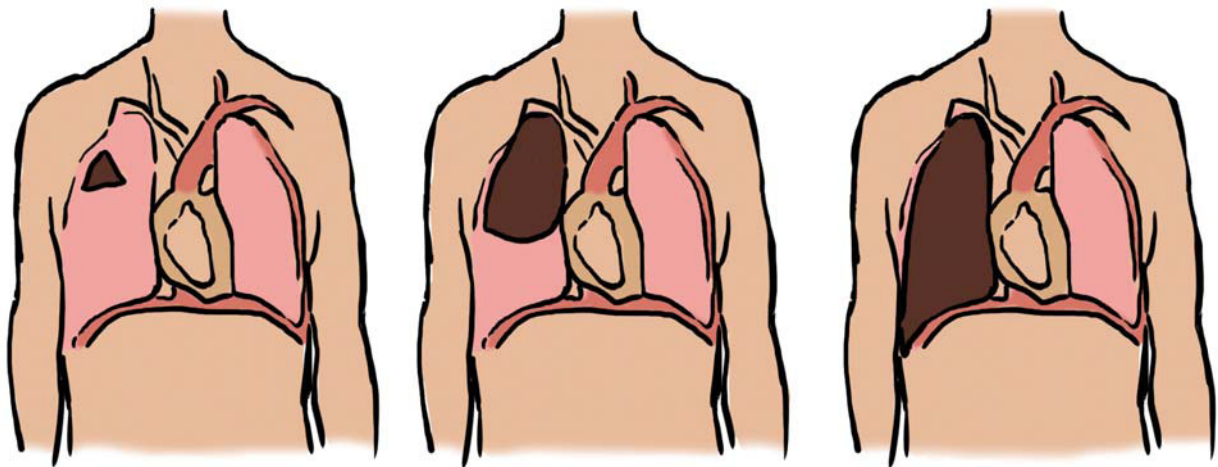


Fig. 2

After surgery

The patient stays for his/her first 2-3 days after surgery in the intensive care unit. Doctors monitor patient's heart rate, body temperature, blood pressure and general condition.

Within a few days after surgery, while the patient cannot eat, he or she will have a dropping system connected. There will also be drainage tubes inserted into the chest incision. They are usually needed for the period from 2 to 7 days after surgery, depending on how fast the patient recovers. Since the incision is on the chest, tubes are fixed between the ribs and are covered with a special bandage.

It is normal if a patient feels discomfort or pain after surgery, but he or she does not need to bear it. Notify your nurse or doctor immediately and ask for painkillers. Weak pain may remain for several weeks.

As a rule, a course of antibiotics and other medications is prescribed after the surgery, depending on the patient's condition, scope of surgery and complications. If there is skin redness or swelling, abscess or leak around suture, or temperature increase, tell your doctor about this.

Recovery after surgery may take a long time. To make this period shorter, we recommend starting to move as soon as you feel you are able to. This is a key point of rehabilitation. Even if you are lying in bed, you need to regularly warm up your legs to stimulate blood circulation and avoid the formation of blood clots.

A physical therapist will show you how to do breathing exercises to prevent possible complications.

Many patients who had undergone pneumonectomy, complain on difficulty breathing, shortness of breath or headaches after surgery. For some time, the remaining lung is still not able to fully supply oxygen to the body. This is associated



with feeling of weakness and headaches. Gradually the lung increases in size and can compensate for the lack of oxygen. However, the complete adaptation of the body takes about 2 years. In order to adapt more quickly, special breathing exercises are recommended.

For the first time the chest may seem depressed to some degree on one side, but the proportion will change to normal within six months.

Returning home

If surgery went without complications and the recovery proceeds well, the patient will be discharged from the hospital after 7, 10 or 14 days after surgery.

After returning home, you must continue to take medications and follow the procedures prescribed by your doctor. After discharge, you need not lie down, you can walk at home. If only part of the lung was removed, it is allowed to go upstairs very slowly. If you feel difficulty breathing when walking, do not hurry, sit down and catch your breath.

It is also necessary to change your diet a little. You shall split your meals into several (4-5) small portions. Full stomach presses on the diaphragm and makes breathing difficult. Your nutrition must be adequate.

Give up smoking by all means. If smoking provokes tumor in the remaining lung, transplantation will be needed which is not always possible.



Treatment

Cancer is well treated but it cannot be cured without special therapy. In most cases removal of the tumor is only the beginning of treatment; it is very important to go through all the steps to achieve the result.

Why do I need treatment?

Many patients feel so tired after surgery and the postoperative period that they do not understand why they have to start receiving therapy so soon. What about waiting for a while?

Others fear therapy stronger than surgery or stronger than the disease itself. Indeed, some medicines can cause adverse effects, but there are special drugs to relief such effects and we will tell about them below.

You shall not allow breaks in treatment under no circumstances because success depends on your compliance. If cancer is given a rest, the process will resume, growth of secondary tumors will begin, and after the break progressive cancer may appear, which is more difficult and more expensive to treat, and most importantly, the treatment is not as efficient as completing cure immediately after surgery.

Do not give in to temptation to take a break, do not let your health care provider to interrupt treatment (see more information about what to do in case of denial to provide medicines in chapter "Legal advice").

Tactics of therapy — basic regimen. Radiation therapy, chemotherapy, target therapy, immunotherapy

There are several types of therapy. They are prescribed in different combinations and sequence depending on the type of tumor, stage of disease and patient's individual characteristics. The treatment plan is compiled as a puzzle from pieces so that to treat each specific tumor in each patient.

Radiation therapy (RT) is a method of local influence on pathological process. Accelerated electrons "burn out" the target (i.e. tumor) at the location where the tumor is pressing on vital organs, for example, heart or major blood vessels or the main bronchus. Sometimes "rays" are prescribed before surgery (neoadjuvant therapy), but more often chemoradiation therapy (CRT) is performed. Postoperative (adjuvant) radiation therapy is now replaced by chemotherapy.

Modern RT is usually not accompanied by serious complications, such as burns or pneumonitis, which require interruption or discontinuation of treatment.

Chemotherapy

Systemic disease is a condition when the disease affected more than one organ. Cancer at any stage may be a systemic disease associated with hidden proliferation of malignant cells throughout the body. Even with stage I tumor, distant metastases are later found in about 10-15 percent of patients. Therefore, the use of only local treatment (surgery and radiation therapy) cannot completely prevent the development of distant metastases. That is why post-operative (adjuvant) chemotherapy is needed that provides a systemic anti-tumor effect. The number of adjuvant chemotherapy courses varies from four to six or eight depending on the disease stage. Less number is inefficient.

In some cases, preoperative (neoadjuvant) chemotherapy is performed. This is done in order to reduce tumor size and to influence on hidden metastasis. Such treatment makes it possible to convert unresectable tumor to resectable one.

During treatment of lung cancer typically a combination of several anticancer drugs with different mechanisms of action is used.

All modern anticancer drugs are associated with toxic reactions, most often nausea, vomiting, anemia and hair loss. You can learn how to cope with them in the chapter "What to expect from chemotherapy?" below.

In the presence of acute infectious diseases, deep violations of liver and kidney function, severe cardiovascular insufficiency, uncompensated diabetes mellitus or pronounced suppression of hematopoiesis chemotherapy must be prescribed with great care. Be sure to tell your doctor about all intercurrent diseases, so that he or she could choose adequate chemotherapy regimen.

Target therapy

The word "target" in cancer treatment refers to a specific mechanism that exists in cancer cells but absent in normal cells. As a type of molecular medicine, targeted therapies block the growth of cancer cells by interfering with the mechanism of action of specific targeted molecules, necessary for tumor cells division and tumor growth, rather than simply inhibiting the growth of all rapidly dividing cells (as, for example, traditional chemotherapy). Targeted therapy is sometimes called "biological therapy" when used in the context of cancer treatment (and therefore, such therapy is different from chemotherapy that is cytotoxic therapy). Targeted therapy uses small molecules and monoclonal antibodies against the targets which are genetically predetermined in cancer cells.

Immunotherapy

Immunotherapy is considered the most promising treatment method in the up-to-date cancer treatment. Over the past five years a lot of new trends and methods of anti-cancer immunotherapy appeared. Currently, further studies are conducted to determine the optimal dosage and treatment regimens, the possibility of using combinations of different immunotherapy types with each other and with other anticancer therapies.

Immunotherapy

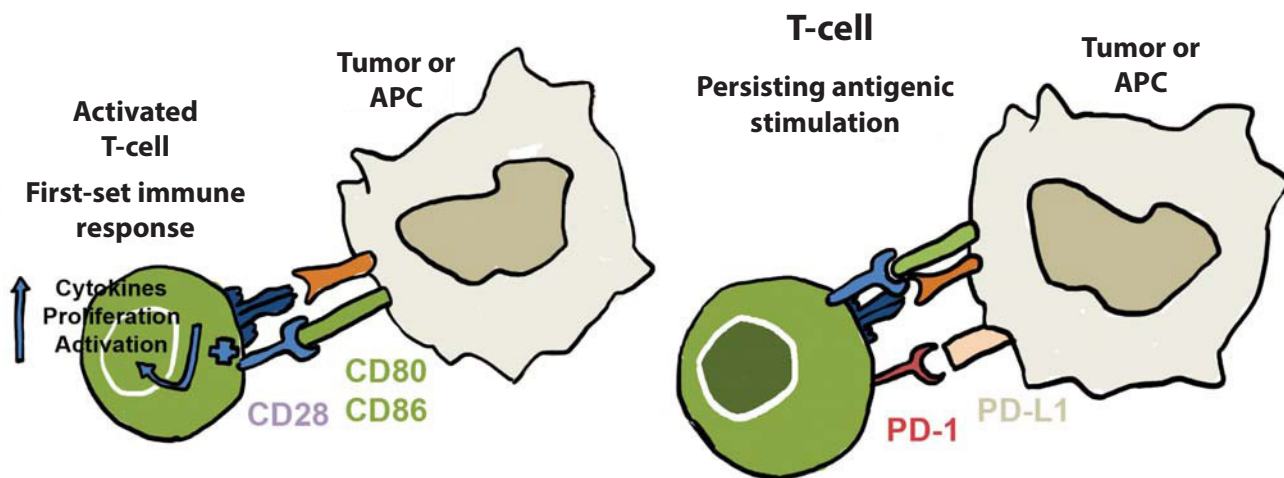


Fig. 3

Researches are constantly finding new mechanisms to activate immunity against cancer cells. Such treatment is effective, safe and less toxic than radiation or chemotherapy. Unfortunately, not for all types of cancer the "immunological key" is found.

Recently, a breakthrough in the treatment of metastatic non-small cell lung cancer was made. Over the past 10 years, ideas about treatment of this cancer have undergone revolutionary changes. Instead of a simple treatment algorithm, it is now an algorithm resembling a subway map.

Traditional (conventional) treatment options for patients with advanced lung cancer include surgery, radiotherapy and chemotherapy, which have different mechanisms of action but one ultimate goal — destruction or inhibition of malignant cells. Immunotherapy works differently.

The human body contains billions of cells that work harmoniously and maintain our body healthy. Part of the white blood cells (leukocytes), called T-lymphocytes, constantly patrol our body for foreign agents getting into it (viruses, bacteria, protozoa, cancer cells, and so on). In the case of such a situation, T-lymphocytes aggressive attack these "enemies" and defeat them.

During such attacks, T-cells use specific protein receptors to bind strongly to foreign agents and to check it for belonging to malignant tumor. If cancer cell is recognized by T-lymphocyte, it is subjected to a massive attack and the malignant neoplasm is completely "cleaned". This is called the first-set response.

Cancer cells undergo various mutations and transformations. Sometimes a situation may arise where the T-cells cannot recognize the enemy: cancer cells form protective receptors on their surface which make them hidden for T-lymphocytes.

Scientists have come up with a unique locking mechanism of tumor cells' receptors. For this purpose, special biological (live) monoclonal antibody drugs are used. They totally disable cancer cells' ability to be invisible for immune cells; as soon as the body recognizes the danger, it destroys tumor.

The whole anti-cancer immunotherapy process, starting from administration of biological drug and ending with complete destruction of tumor, is quite a long process that can take several months. During this period, the patient should be kept under close observation by doctors, and his/her health condition must be closely monitored. In immunotherapy slightly different criteria are used to evaluate treatment efficiency than in the chemotherapy or radiation therapy.

Clinical trials of drugs

Prior to the wide use of the most advanced drugs, they go through many phases of testing and certification. Physicians must be sure that new medicines are safe and efficient. For this purpose, many clinical trials are conducted all over the world participation of volunteers. For many patients, this is a real chance for recovery, because not all of them can survive until approval of the new drug.

If the doctor knows about a current clinical trial, and the patient is eligible for participation, then the doctor can offer the patient to participate in it. Patients often refuse to do that because of fear. The problem is in a prejudice like "I do not want to be a guinea pig". It sounds rough, but this is exactly what some patients say. In reality, there is nothing demeaning in the participation in such trials. They are conducted by the largest pharmaceutical companies. Trial protocols are very strict, so patients will receive the most complete, all procedures will be made on time, and the patient will not pay for it.

We know many patients who have been able to recover from cancer during clinical trials and live many years without thinking about the disease. Others have not achieved remission, but could significantly extend life and its quality, which is important for the terminally ill patients.

You can search for information on clinical trials conducted in Russia to try to take part in them.

What are original drugs and generics?

Drugs prescribed to patients are often cheaper counterparts of original drugs, the so called generics. Generic is a copy of relevant original drug; it is comparable to the original drug in terms of efficacy, dosage, mode of action, administration route and indications for use. The active pharmaceutical ingredient is the same as that of original drug, but some excipients may vary. Such drugs have different trade names because manufacturers are different.

Although generic drugs are comparable to the original medicines in terms of efficacy and safety, they are much cheaper because their development process does not include such expensive and time-consuming steps as research and development of the medicine from scratch and multi-phase clinical trials. Analogs created using an existing scheme are much less costly for their manufacturers. Accordingly, for medical institutions and patients generics are much more accessible than originals, and this is their great advantage. No country can provide all the patients with original drugs, but this is not necessary if their cheaper counterparts are equivalently safe and effective.

Side effects of chemotherapy

What to expect from chemotherapy? How to survive the loss of hair, nausea and anemia...

Chemotherapy is an effective but toxic treatment. It affects not only cancer cells but also the entire body.

Every year cancer drugs are becoming more and more efficient — the best scientists of the world work on it. Modern drugs are much stronger than their predecessors, the probability of positive outcome is higher, as well as the toxic effect. Chemotherapy can cause temporary hair loss (alopecia), toxic intestinal damage (nausea, vomiting, goiter, diarrhea, etc.), decrease immunity and worsen blood counts. During treatment a patient must regularly have tests to monitor all the indicators and to keep track how the body reacts to the treatment.

Many patients are afraid of severe side effects of chemotherapy. There are even those who refuse of treatment because of this fear. However, science has leaped forward in this sphere as well.

It is impossible to imagine current treatment without the so-called "maintenance therapy", when patients receive medications that help ease the side effects of chemotherapy.

Do not endure discomfort, tell your doctor about it and ask to prescribe maintenance therapy.

Nausea

There are plenty of antiemetics that can help patients to tolerate chemotherapy much easier.

Vomiting can be of several types. Acute vomiting occurs during the procedure and may persist for up to one day. Delayed vomiting develops within two to three days after the drug administration. There may be so called anticipation vomiting, which develops as a psychological effect; it begins a few days before the dropper procedure.

Vomit reaction to medication is due to several factors: irritation of the stomach lining, intoxication, response of receptors to serotonin and dopamine secreted by the body.

The mechanism of action of all antiemetics is similar: these agents are antagonists, or inhibitors, that bind to the appropriate receptors in the small intestine and in the brain (5-HT₃, NK-1, dopamine, etc.); they make receptors inactive and interrupt the transmission of nerve impulses, blocking nausea and vomiting mechanism.

It is crucial to select the optimal regime to prevent acute and delayed nausea and vomiting before chemotherapy and to start preventive therapy without delay. Symptomatic treatment at a stage when nausea and vomiting has already occurred is ineffective.

Blood counts

During treatment, blood counts are also decreased and this can cause different conditions — thrombocytopenia, anemia, reduced blood clotting ability, neutropenia. That is why during chemotherapy patients must have regular blood tests to monitor how the body tolerates treatment. The doctor must timely prescribe drugs to correct patient's condition and prevent the development of severe complications. Changes in the blood and hematopoietic system can be very dangerous. For example, immunity may decrease that can lead to severe

infections. Sometimes doctors even have to interrupt treatment and wait until improvement of blood counts.

Changes in blood counts indicate a decrease in immunity. If patient's immunity is reduced, he or she must avoid infections.

Stomatitis

Chemotherapy can be the cause of stomatitis when skin cells are exfoliated from the oral mucosa, it turns red and edematous and small ulcers are formed. The mouth becomes very dry and cracks appear on lips. Patient's gums may bleed.

It is important to know that stomatitis is only temporary complication during chemotherapy. It will disappear when the treatment is completed and when white blood cells (leukocytes) return to normal level. The likelihood of stomatitis depends on the type of chemotherapy and your condition.

Mucosa of the mouth is vulnerable to infections when stomatitis is present, especially when the level of blood leukocytes is low. Leukocytes, in particular, neutrophils, play an important role in protection against infections. Reduced white blood cell count leads to stomatitis and infectious complications in the gastrointestinal tract. The faster white blood cells level increase within the interval between treatment courses, the lower is the risk of infections.

One of the most often oral infections associated with stomatitis is thrush — an infection caused by candida fungi. Thrush causes white patches, with a texture similar to cottage cheese on the buccal mucosa and tongue. Treatment includes administering antifungal drugs.

You can prevent stomatitis or significantly reduce its manifestations. Firstly, prior to chemotherapy it is desirable to visit a dentist and try to eliminate all the chronic problems (inflammatory foci — gingivitis, periodontitis). The dentist will also advise you on ways to prevent stomatitis. Secondly, during the treatment, it is recommended to examine your mouth daily for redness, swelling, tenderness, white fur and bleeding. If you experience any of these symptoms, contact your dentist.

Fever after chemotherapy

Temperature increasing after chemotherapy may be associated not only with infection, but also with the so-called flu-like syndrome.

Flu-like syndrome may be caused by some drugs. After administration of the drug patients feel as if they have the flu or a cold for several hours or days. This happens more often if chemotherapy drug is combined with biological therapy (interferon). Cold symptoms — muscle or joint pain, headaches, weakness, nausea, subfebrile fever (usually at a temperature below 38 °C), shiver, poor appetite — these symptoms can last for 1 to 3 days. To prevent such effects, patients take these drugs before going to bed with preceding antipyretics (not aspirin!). However, infections can also cause these symptoms. So tell about them to your doctor.

Hair loss (alopecia)

Unfortunately, drugs against hair loss during chemotherapy are not invented yet. It is not a painful side effect such as nausea, weakness and fever, but patients, especially women, often suffer from it even more.

It depends on the drug how quickly hair is lost. Sometimes hair comes out completely within a week, sometimes within a month. Most often, hair begins to come out suddenly and abundantly. You can find a lot of hair on your pillow in the morning or a large lock in your hand after shower. After hair on your head, eyebrows and eyelashes come out as well as hair on other parts of the body.

A patient cannot get fully prepared for this moment. To make the hair loss not as visible and shocking one can choose cutting his/her hair short before the procedures in order to get accustomed. This is especially true if the hair is long enough. When they start to come out, a patient can even shave bald and avoid stress associated with gradual hair loss.

There is one consolation: this baldness is not forever. Hair will necessarily grow back. They can change color after chemotherapy and become softer — like fuzz on baby's skull. New and beautiful hair will grow later. This occurs most often within six months after the end of therapy.

During chemotherapy you can wear beautiful scarves, caps, hats or wigs. It's hard but temporary stage. The main thing is to get cured!

Side effects of immunotherapy

The goal of immunotherapy is to teach the body's defense forces (immune system) to recognize and destroy cancer cells. In this case, typical side effects of classical cancer treatment using chemotherapy and radiation therapy are not the case. Therefore, it is commonly believed that corresponding drugs are not toxic. Meanwhile, each of us knows that such immunotherapy measures as preventive vaccination against infectious diseases often have severe side effects. The same side effects may be observed in the case of immunotherapeutic anti-cancer drugs:

- Weakness
- Inflammation of the mucous
- Nausea
- Skin rash or any other allergic reactions
- Low blood pressure
- Increased body temperature
- Diarrhoea

In rare cases, activated T-lymphocytes begin to "confuse" cancer cells with some normal cells in the body. Such cases may lead to the development of autoimmune thyroiditis, diabetes mellitus, hypophysitis or hepatitis.

With immunotherapy the frequency of autoimmune lesions of the mucous membranes, intestinal, liver, thyroid, pituitary gland and pancreas is up to 50 percent. Therefore, it is necessary to find ways to reduce the adverse effects of these drugs. During immunotherapy, it is important to be under constant medical supervision of a physician who is in charge of this treatment. To correct the adverse effects additional drugs are prescribed, which block such effects by reducing the risk of an autoimmune process, without affecting the efficiency of the main drug.

Fortunately, these adverse events are very rare.



Legal advice

Patient's rights are secured by law, but the Russian reality is such that a patient often has to defend his or her right to be treated. The most common violations include: failure to provide timely medical care, denial to conduct diagnostic studies and to prescribe effective treatment, delaying of provision of free examinations. Patients often found themselves in situations when they have to pay for something they are eligible for free under Compulsory Health Insurance (CHI).

Patients' basic rights

To protect your rights, you must first read two basic documents: "Territorial program on state guarantees of free medical care to citizens" and "Standard of medical care" for corresponding disease. The territorial programs of state guarantees are approved in the regions every year. Its text must be posted in the lobby of any medical institution. In particular, the Program determines waiting times for diagnostic tests, for visits to a doctor and planned hospitalization.

You can learn whether you need to pay for a diagnostic study you were referred to from the Standard of care — the list of free services and medicines approved by the Russian Ministry of Health. Standards of lung cancer treatment are approved by the Russian Ministry of Health Order of 07.11.2012 No. 684n "On approval of the standard of specialized medical care at malignant new growths of the lung of the I-II stage (surgical treatment)". Another applicable regulation is the Russian Ministry of Health Order of 24.12.2012 No. 1462n "On approval of the standard of specialized medical care at malignant new growths of the lung of the III-IV stage (palliative endoscopic treatment)".

Dispensary registration

Cancer patients are registered with oncological institutions in community and shall be under lifelong dispensary observation (Russian Ministry of Health Order of 19.04.1999 No. 135 “On the improvement of the State cancer registry system”). A patient with a confirmed diagnosis shall be registered with the territorial cancer center. As a rule, it is these centers where patients receive care including surgery, chemotherapy and radiation therapy. During the first year, a patient has to pass examinations once every three months, once every six months during the second year and annually — in the later period.

Unfortunately, sometimes cancer centers deny in registration and treatment of patients with stage 4 cancer. This is illegal. When advanced cancer is diagnosed in any medical institution, it must compile and send to cancer center a document called “Protocol of advanced malignancy diagnosis in a patient” (document code 027-2/U). Denial to fill the protocol is regarded as concealment of cases of untimely diagnosis of cancer.

Denial of treatment

Patients with any cancer stage, including stage IV, have the right for anti-tumor therapy; if such therapy is not indicated for them, then they have the right for palliative care and both types of treatment include the use of drug therapy and radiation therapy according to the standards of care. Treatment of patients in the territorial cancer center is conducted on the basis of the Russian Ministry of Health Order of 15.11.2012 No. 915n “On the approval of medical care provision for population in the field of oncology”, according to which patient's treatment issues are decided by the council of physicians of the territorial cancer center.

If patients with advanced stage of cancer are really not eligible to further cancer therapy, then he or she receives a medical report (epicrisis) with recommendations for symptomatic treatment in community (prescription of pain medication by cancer specialist or therapist in the patient's community).

Where to complain

If you are denied of treatment within the scope of the standard of care (you are asked to pay in a hospital for standard diagnostic procedures or drugs, or to pay for diagnostic procedures during treatment in a hospital), you can complain to the insurance company or the Territorial Fund of Compulsory Medical Insurance TF CHI and apply medical documentation. You can also call the hotline of your regional health authority. For leverage, you may say that you will complain to the prosecutor's office for denial in provision of medical care. Sometimes it is enough to appeal to the head physician and say that after payment for services you will contact your insurance company for reimbursement for the money spent. If you still had to pay, save all proving documents and contact your insurer.

Specialized medical care in another city

Any patient has the right to specialized medical care if he or she is eligible to it; such care include high-tech medical care (HTMC), in health care institutions of other administrative units of Russia or in federal health care institutions. Referral to a medical institution located in other city is issued if according to the medical commission conclusion the patient needs treatment in said institution or if the possibility to provide certain types of specialized care in the region is absent, including:

- when it is needed to establish a final diagnosis in case of atypical course of the disease;
- in the absence of effect of treatment, by repeated courses of treatment, in case when other treatments are likely more efficient;
- in the case of high risk of the need in surgical treatment due to complicated course of the underlying disease or the presence of comorbidities;
- if additional diagnostic procedures are necessary in complicated cases;
- if re-hospitalization is necessary according to the recommendation of a federal institution.

You shall ask for referral or voucher for specialized medical care in the regional health care authority. If you have a disability, do not forget to ask for voucher #2 for compensation of travel costs to the place of treatment. Department of the medical assistance organization of the Russian Ministry of Health is also authorized to refer patients to federal clinics. If a patient wants to use this option, he or she has to send a written request with personal data and copies of medical documents.

Decision on patient admission is taken by the commission of the federal clinic within 10 days from the date of issue of a voucher; in case of personal visit for examination — within three days. If a patient is referred to federal clinic, then he or she must have a document that confirms inadequate effect of the specialized medical treatment in his/her community. You cannot choose the scope of HTMC, as it is approved by the order of the Russian Ministry of Health. But you can choose the institution from the list of institutions that provide HTMC.

In addition, a patient can address directly to the federal institution for provision of health care, including emergency care. If the commission of the federal institution takes a positive decision, the patient is admitted and later all necessary documents are filled out. But a patient must prove the need for urgent hospitalization by providing relevant medical documents. As for outpatient care, a patient can address for to a specialized institution in another city himself/

herself; no referrals are needed, only passport and CHI policy. But in all cases when a patient wants to use services of a clinic in another city, it is recommended to write or call there in advance.

Vouchers for cancer high-tech medical care are issued for surgery and radiation therapy only, but not for chemotherapy. Chemotherapy (one course only) as part of HTMC is allowed only if it is combined with surgery or radiation therapy. A general rule is that all types of drug treatment should be in the patient's community at his/her cancer center.

Important!
Patient has not pay for anything during in-patient treatment when referred to HTMC. If a patient is asked to pay for something at the federal clinic, then he or she should complain to the head physician of this clinic or to the Russian Ministry of Health.

Inpatient treatment

Hospital is virtually the safest place in terms of receiving drug treatment. All treatment is free here, if the drug is included in the in-patient standard of care for the disease and in the list of vital and essential drugs (VED list), which should always be available. All drugs shall be prescribed by their relevant international nonproprietary names (INN).

Drugs not included in the standard and VED list can be prescribed to the patient by the decision of medical commission in case of individual intolerability, for health reasons, atypical course of disease or presence of complications. The same applies to medicines under trade names (Ministry of Health Order of 20.12.2012 No. 1175n "On approval of the procedure for assigning and prescribing medicinal preparations, and prescription forms for medicinal preparations, procedure for completing the said forms, recording and storage thereof").

The fact of intolerance, persisting for several administrations, must be recorded in medical card, must have causative relationship with the drug under the INN and affirmed the decision of the medical commission. In addition, the doctor must send the information about drug intolerance to local bodies of Federal Service for Surveillance in Healthcare (Roszdravnadzor), by filling out the "Report on side effect, adverse reaction or lack of expected therapeutic effect". It is advisable for the patient to remind the doctor about it.

Drug provision for outpatient treatment

The main problem that cancer patients face is interruptions in the provision of drugs, most often it is due to a lack of funding. In some cases there may be interruptions with the supply of medicines to pharmacies — a patient has got the prescription at last, but cannot obtain the drug. The most important thing for the patient to remember is that the denial to issue a prescription or to dispense a drug is illegal. Under no circumstances the lack of funding can be a valid reason for this.

In order to be provided with reimbursed drugs, patients who have a disability group are included in the federal register of beneficiaries by the local Pension Fund department. Cancer patients without disability status are included in the regional register of beneficiaries by the health care institution. Cancer patients without disability status are "regional benefit recipients" with the right to receive all drugs for free.

Important!

A cancer patient without disability is entitled to free medicines not only for cancer, but also for any other disease.

This right is lost only when the patient is excluded from the register. The legal basis is the Russian Government Resolution of 30.07.1994 No. 890 "On state support for the development of the medical industry and improvement in the supply of medicinal products and medical devices to the public and health-care institutions", which states that the right to be provided with free drugs is granted to persons with disability groups 1 and 2 and cancer patients.

The oncologists at consultation prescribe necessary drugs to the patient, the oncologist in charge of the case includes the patient in the drug application of this cancer center and then the application is signed by head physician and sent to the regional health authority for approval. Approved applications are returned to health care providers and to the pharmacy providing free drugs. Community doctors must prescribe free drugs regardless of whether it is available in the pharmacy.

Where to complain if you are not provided with free drugs:

- Head of the out-patient clinic where doctors deny to issue a prescription for free drugs;
- Drug supply department of the regional healthcare authority;
- You can appeal in writing with complaint on action and failure to act of the regional healthcare authority to the regional office of Roszdravnadzor;
- To the prosecutor's office with a complaint of failure to comply with regulations on the right of a cancer patient to obtain free medicines.

Actions pharmacies and pharmaceutical companies in case of unavailability of drugs in a pharmacy are regulated by the Letter of the Federal Service on Surveillance in Healthcare and Social Development of 06.02.2006 No. 011-60/06 "On the order of providing temporarily absent drugs". If the drug is not currently available, the prescription is recorded for delayed provision in a special logbook of unmet demand. You shall not leave your prescription at the pharmacy;

a pharmacist only marks the registration number and date and returns the prescription. After that, a pharmacy fills out an application form and sends it to the authorized pharmaceutical organization.

The drugs against the prescription must be supplied within 10 days after it is registered in the unmet demand logbook. If necessary drug is unavailable in the pharmaceutical company, it must be purchased and delivered to the pharmacy within 6 working days. As a result, after maximum of 16 days, the drug must be provided to the patient. If this does not happen, call to the head of the authorized pharmaceutical company — you can find the phone number which is available at each pharmacy that provides free drugs.

If the pharmacy failed to provide the drug within 15 days, you can buy it at your own expense and save payment documents and the prescription. Then you have to write a complaint to the authorized pharmaceutical company asking for compensation. Regardless of whether it is satisfied or not, it can serve as the grounds for going to court with a claim for damages from authorities responsible for drug supply.

Important!

If you purchased a prescribed drug at your own expense but it was not registered for delayed provision, the court will not decide to compensate you the costs.

Disability

If a disability status is assigned to the patient, the list of free drugs automatically expands, and the access to them becomes easier. Therefore, it makes sense for cancer patients to receive this status; under no circumstances cancer patient shall refuse from the social package in exchange to monetary

compensation. Persons with disabilities have the right to receive any prescribed drugs from the current List of Vital and Essential Drugs. According to the Federal Law of 17.07.1999 No. 178 "On state social assistance", these costs are compensated from the federal budget. The list of free drugs available for regional beneficiaries is contained in another list annexed to the territorial program of state guarantees in your region. This latter list is limited by financial capacities of the region.

In itself, cancer is not the basis for the assigning disability status. Patients are referred for assessment by the medical and social expertise commission (MSEC) if they need to have their working capacity to be assessed for employment, or patients after radical treatment need labor advice, or patients who receive adequate chemotherapy and hormone therapy have questionable prognosis after radical treatment, have relapsed or developed distant metastases, as well as patients with progressive disease after palliative treatment.

The disability status is assigned based on physical dysfunctions and limitations of ability to work stated in the Order of the Russian Ministry of Labour of 29.09.2014 No. 664n. To recognition a person as disabled at least moderate persistent impairment of bodily functions must be present which cause disability based on the following criteria: limitation of ability to self-service, mobility, orientation, communication, ability to control own behavior, learning and working abilities. A patient is referred to MSEC by medical organization, regardless of its organizational and legal form, by social welfare authority or pension fund body (clause 15 of the Government Regulation of 20.02.2006 No. 95).

Preparation of papers for MSEC with obvious adverse clinical and labor capability prognoses due to disease is carried out no later than 4 months from the start date of disability (clause 27 of the Russian Ministry of Health and Social Development of 29.06.2011 No. 624n "On approval of the issuance of sick leaves"). The establishment of disability group depends on the stage of disease, histopathology results, presence or absence of metastasis and the volume of

ongoing or planned treatment. In fact, in case of cancer the disability is assigned for further treatment, if the patient is not capable to work in his/her profession in the first 3 years, in connection with poor prognosis of the disease.

Important!

The disability status cannot be cancelled during the period of cancer therapy. If this happens, you can appeal the decision of the local MSEC to the main MSEC within a month. Another option is to complain to the prosecutor's office.

Palliative care

In the later stages of the disease, cancer patients need palliative care and symptomatic treatment. Palliative care can be started already in cancer center after the final decision that patient is incurable. For palliative care purposes, radiotherapy and drugs may be prescribed and used. On discharge from the hospital, doctors may prescribe or hand over directly to such a patient narcotic analgesics for 5 days. Such patients are visited by internist at home; the doctor assesses patient's condition, prescribes analgesics, including narcotic analgesics.

Prescribing of analgesics is regulated by the Russian Ministry of Health Order of 20.12.2012 No. 1175n "On approval of the procedure for assigning and prescribing medicinal preparations, and prescription forms for medicinal preparations, procedure for completing the said forms, recording and storage thereof" (version in force since 01.01.2016).

Important!

Now recommendations from oncologists are not required to prescribe narcotic analgesics. The local doctor has the right to assign and prescribe such drugs.

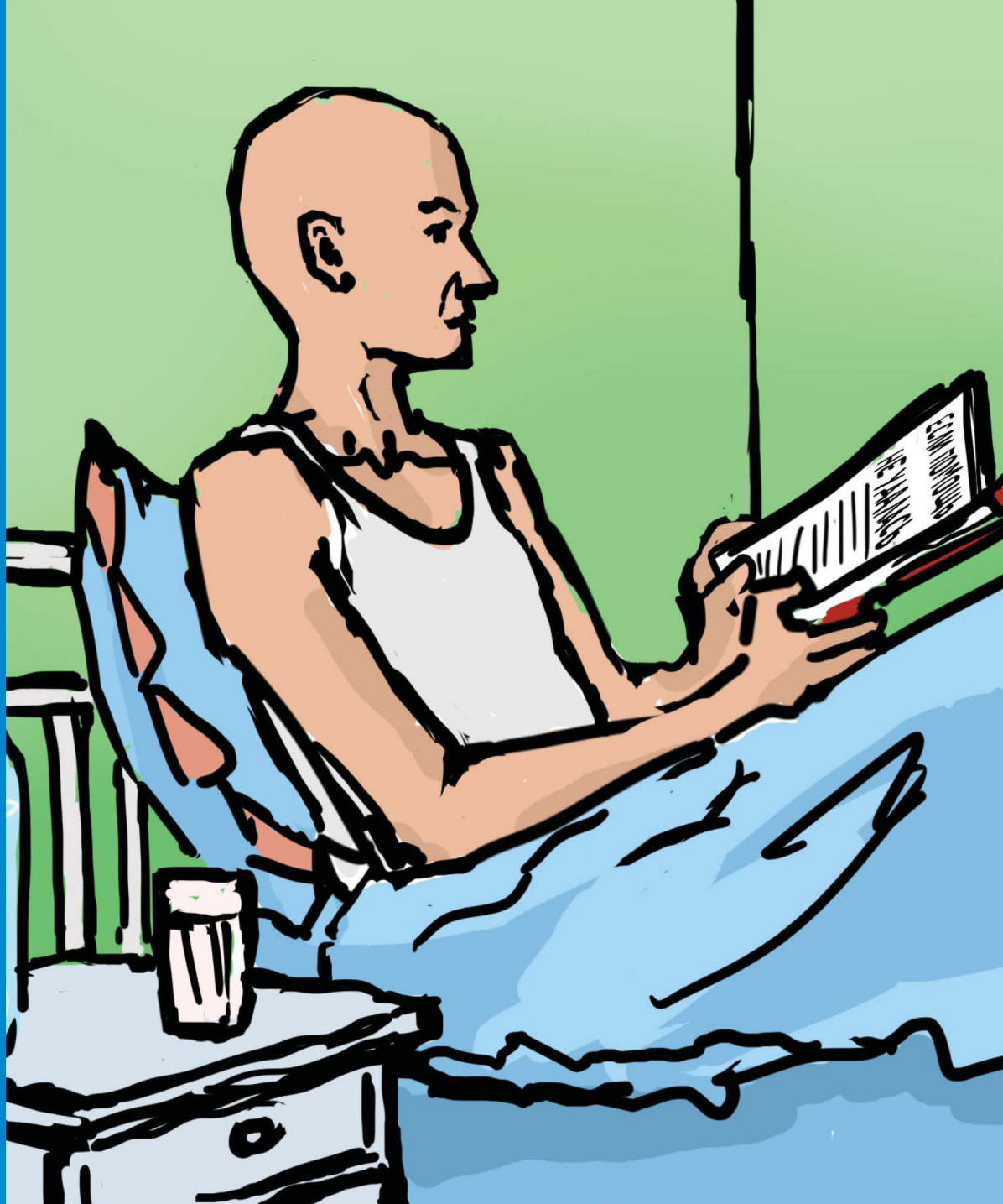
For the purposes of palliative care the amount of prescribed narcotic drugs from the List II (morphine, prosidol, fentanyl, buprenorphine, piritramide, etc.) may be increased twice as compared to the maximum allowable amount per prescription. If weak opioids fail to help the patient any more, doctors have to change the pain management scheme. If community doctor refuses to change it and continues to write in the patient's medical history that the pain is moderate, it is recommended to ask hospice workers to give written recommendations for prescription of painkillers up to narcotic ones.

For the treatment of acute and chronic pain syndromes, a united tactics should be applied based on strict correspondence of prescribed painkillers to the pain intensity. The pain management scheme is contained, for example, in the methodological guidelines "Principles of clinical application of narcotic and non-narcotic analgesics for acute and chronic pain" (approved by the Department of health care and recreation development of the Russian Ministry of Health and Social Development of 24.11.2004).

Where to complain

If doctors do not prescribe you painkillers or if painkillers are ineffective, or doctors refuse to change your pain management scheme, you can complain on the provision of substandard medical care or denial of its provision to the following persons and bodies:

- head of the clinical expert commission of health care institution;
- head physician of out-patient clinic;
- regional health care authority;
- territorial office of Federal Service on Surveillance in Health Care;
- insurance company that issued CHI policy and Territorial CHI Fund;
- prosecutor's office in the region.



Palliative care

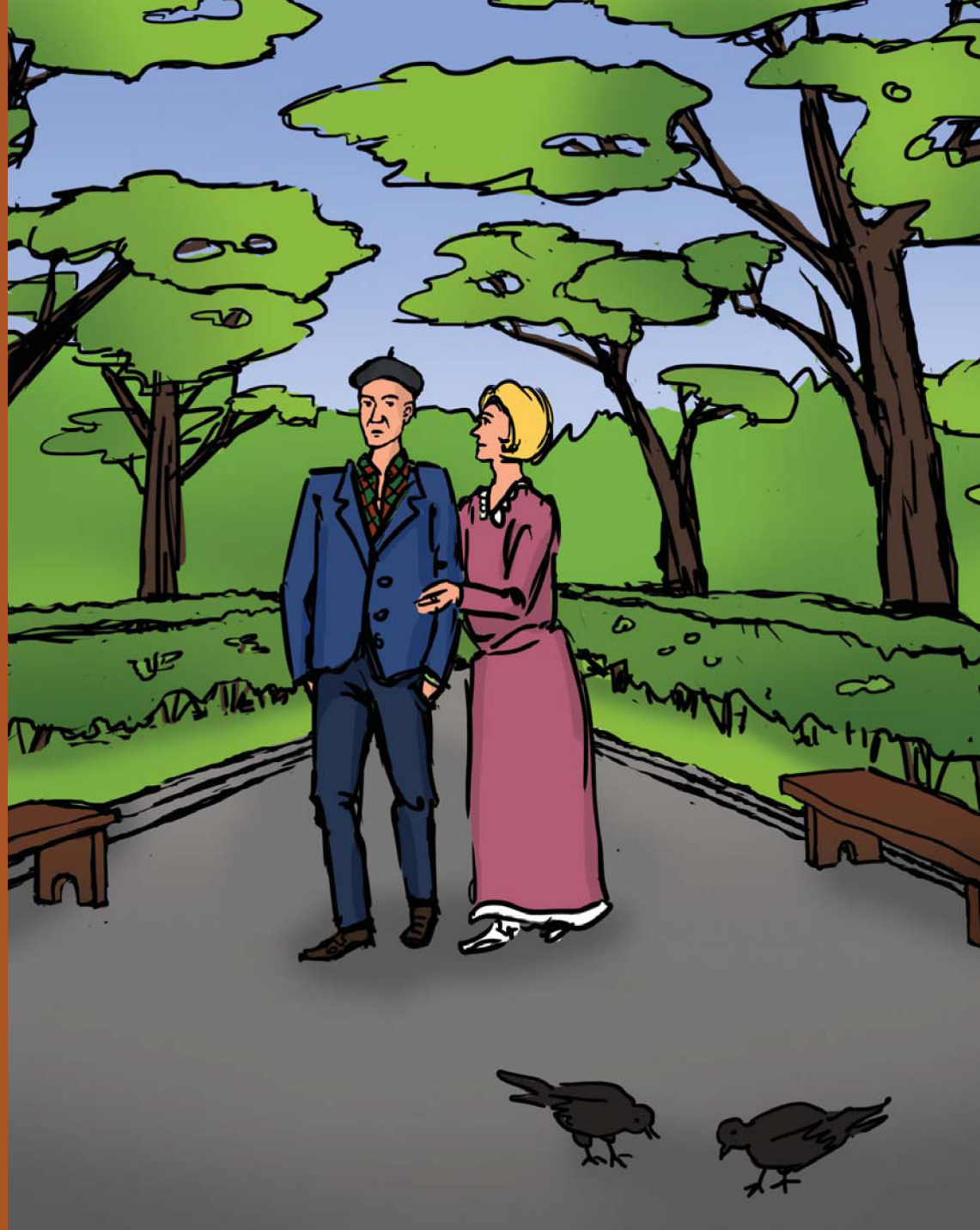
Sometimes the treatment cannot help a patient. This happens most often when the cancer is detected at a late stage with metastases and the disease has no cure. Typically, in this situation the patient suffer from pain, feels discomfort and poorly tolerate the disease.

If treatment failed to help

In such cases, the patient needs palliative care, not anti-cancer therapy. Doctors can prescribe treatment to extend patient's life and improve its quality. This may be chemotherapy, radiotherapy or pain relief — depending on the indications.

In special institutions — hospices — such patients receive adequate care and psychological support.

For palliative care, the main task is not to cure the disease, but to improve the patient's quality of life until the end. Indeed, even "if a person cannot be cured, it does not mean that we cannot help him or her". These are the words of Vera Millionschikova, the founder of the first hospice in Russia.



Rehabilitation

Many of those who have successfully passed treatment and recovered, live in fear that cancer will return and it will be necessary to start again. Unfortunately, sometimes cancer really returns, and it is not uncommon. New tumors (relapse) may appear at any time after the first course of treatment. Most often this happens if cancer was detected at a late stage at first time when the tumor was already big in size and lymph nodes were affected.

Whether the cancer will return?

Unfortunately, nobody can say with certainty that all cells left are eliminated from the body: they can be during diagnostic studies, but then they will grow new treatment will be needed. It happens, for example, if edges of the tumor were left unresected or metastases spread through the body, which were still invisible at the time of diagnosis. That means that cancer may recur elsewhere. That is why doctors may prescribe chemotherapy or radiation therapy after surgery in order to kill any remaining cancer cells.

If the cancer returns, it usually occurs within the first two years. If the disease did not relapse in the first five years, then most likely it will not return.

You can try to prevent a relapse, and if it does happen, then to detect it as early as possible. So you need to see your doctor regularly and to pass preventive examinations. For the first time you must visit your doctor every four months. The more time passes, the less often you need to be examined. Five years after the end of treatment, you will need to pass checks only once a year.

Take care of your health. Try to get plenty of rest, avoid stress and conflict situations. Keep a diet: nothing fatty or fried, more fruits and vegetables. Try to control your weight. Practice sports and long walks. Quit bad habits. Reduce the amount of alcohol to a glass of wine or beer a day. If you plan leisure at sea, do it with great care. You can go to hot countries but not in the summer. Stay in the shade and under an umbrella; be sure to use protective sunscreen creams. It is strictly prohibited to visit the tanning salons.

Even if the cancer comes back, it does not mean that you will not be able to beat it again.

How to stop worry and start living again?

Solution of psychological problems is a very important part of rehabilitation. Psychotherapy, which previously only supported basic treatment, is now coming to the foreground. Indeed, we are returning back to a healthy state. To a state where we can get sick or we can live long healthy. It depends on how we will deal with our psychological problems.

During rehabilitation, the level of anxiety in patients is typically high. This is true for the fear of recurrence as well. Sometimes it develops into a real phobia — there are no reasons to be afraid of recurrence, but one's life is determined by this fear only. It takes away the joy of victory over the disease. As a result, it turns out that patients discharged from cancer center, in fact, already healthy individuals, suffer from depression and chronic insomnia, apathy, loss of meaning in life, lack of belief that one can live like before the disease, despair from fatigue and feelings of worthlessness.

Psychotherapist will help you to cope with all these conditions. There are special trainings and group classes. Doctor can choose the drug therapy using modern drugs, combined with treatment of illnesses, which remain after anti-tumor treatment — in the liver, stomach and kidneys.

In order to recover completely, you have to feel healthy, perceive yourself an ordinary person, not a patient. No need not try to forget what happened to you (it is simply impossible, especially for a while). You must try to take it as an experience, as an incident. Or imagine that you survived in a car accident. This can happen again or may never happen. That is why car accident survivors do not stop driving or using cars.

Do not hesitate to consult specialists.

Information booklet

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IMMUNO-ONCOLOGY. LUNG CANCER

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