UDC 615.277.3

SOME DRUGS USED TO TREAT CANCER

Hudoyberdiyeva Mashhura

Assistant, Department of Pharmaceutical Sciences, ASMI

Abstract. Medicines occupy an important place in the treatment of malignant neoplasms. Many drugs have entered medical practice that are effective not only for blood diseases (hemoblastosis), but also for true tumors. Unfortunately, the available antitumor drugs are not sufficiently advanced.

Keywords: cancer, antimetabolites, blastoma, antibiotics, leukemia.

As a rule, they provide only remission and only in some tumor diseases (for example, uterine chorionepithelioma, acute lymphocytic leukemia in children, lymphogranulomatosis, malignant testicular tumors, skin cancer without metastases) can a complete cure be achieved through the use of a number of drugs. One of the limiting aspects in the drug treatment of malignant neoplasms is the addiction of tumor cells to the drugs. The process of addiction can be slowed down to a certain extent by the combined use of drugs with different structures and different mechanisms of action. A significant drawback of most modern drugs is also their low selectivity of action against tumor cells. Typically, the use of cytotoxic drugs is accompanied by serious side and toxic effects. In this case, actively proliferating tissues (bone marrow, intestinal mucosa) are particularly affected. Many drugs also have a negative effect on the gonads (they can cause sterility). A number of antibiotics with antitumor activity have a cardiotoxic effect. Platinum drugs have a pronounced nephrotoxic effect. Cytotoxic drugs often cause nausea and vomiting. However, when the drugs are used in therapeutic doses, side effects are usually reversible. Antiblastoma cytotoxic drugs also have immunosuppressive, mutagenic and teratogenic effects. In some cases, to reduce the toxic effect and increase the effectiveness of drugs, they are administered intra-arterially directly to the tumor. In this case, it is advisable to reduce the venous outflow from the affected tissues, which

increases the duration of contact of substances with tumor cells and reduces the severity of adverse effects associated with the resorptive effect of substances. For the same reasons, sometimes they resort to perfusion with solutions of anti-blastoma drugs of the area where the tumor is localized. Contraindications to the use of most antitumor drugs are inhibition of hematopoiesis, acute infections, and severe impairment of liver and kidney function. In recent years, immunostimulating agents (interferons, etc.), interleukins and other auxiliary agents have begun to be included as components of combination chemotherapy for tumor diseases. In some cases this has a beneficial effect. Naturally, anticancer drugs are prescribed in cases where this method of treatment can give a better effect than others. Modern chemotherapy of tumor diseases is based on the combined use (simultaneous or sequential) of antitumor drugs from different groups. Chemotherapy is often combined with surgical removal of the tumor and radiation therapy. Substances used as anti-blastoma agents can be represented by the following groups.

Alkylating compounds. Chlorethylamines - embiquine, sarcolysine, dopan, chlorobutine, cyclophosphamide, prospidine, ethylenimines - thiophosphamide, methanesulfonic acid derivative - myelosan, nitrosourea derivatives - nitrosomethylurea, lomustine, carmustine, nimustine, triazines - dacarbazine, procarbazine, platinum compounds - cisplatin, carboplatin, o xaliplatin.

Antimetabolites 1. Folic acid antagonists - methotrexate, purine antagonists - mercaptopurine, pyrimidine antagonists - fluorouracil, ftorafur, cytarabine.

Antibiotics with antitumor activity. Actinomycins - dactinomycin, anthracyclines - rubomycin, doxorubicin, carminomycin, phleomycins - bleomycin, bleomycetin, aureolic acid derivatives - olivomycin, of different chemical structures - bruneomycin, mitomycin.

Herbal preparations. Vinca rosea alkaloids - vinblastine, vincristine, yew tree alkaloids (taxanes) - taxol, taxotere, podophyllotoxins isolated from thyroid podophyll - etoposide, teniposide, alkaloids of the splendid crocus - colchamine, colchicine.

Thus, the number of drugs with antitumor activity is very large. The clinician's task is to select the most appropriate drugs for each individual patient and determine the necessary course of treatment. Most anti-blastoma drugs cause a number of side effects that limit their use. In order to neutralize these complications to some extent or prevent them, a whole range of auxiliary agents is used for chemotherapy of tumor diseases. These include the following groups: agents that stimulate hematopoiesis: colony-stimulating factors, leukopoiesis stimulants: leukomax, molgramostim, filgrastim; stimulants of erythropoiesis - erythropoietin, antiemetics: ondansetron, tropisetron, metoclopramide, agents that increase the body's immune defense: interferons, interleukins, thymus preparations, levamisole; drugs that suppress the manifestations of carcinoid syndrome in malignant neuroendocrine tumors: octreotide.

In addition, cardioprotective, cytoprotective agents, substances that protect the urinary tract from damage by certain antitumor drugs (their metabolites), etc. are used.

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