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Basic Concepts and Terms of Pharmacology

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Annotation: *This article describes the definition and use of pharmacological terms, focusing on the classification and properties of drugs. From the information provided in this article, you can learn about the correct choice of medicines and their recommendations. Pharmaceutical technology (from the Greek techne - art, skill, skill and logos - doctrine, science) is a science that studies the theoretical foundations of technological processes for the production and processing of drugs (substances), therapeutic, prophylactic, rehabilitation and diagnostic drugs in various dosage forms and therapeutic systems optimal bioavailability.*

Keywords: pharmacological agent, drug, dosage form, stability, excipients, biopharmaceutical research, Therapeutic index.

I. INTRODUCTION

The task of pharmaceutical technology is to identify the physical, chemical, mechanical properties of substances in order to determine and use in practice the most efficient and economical production processes. Pharmaceutical technology is a composite part of pharmaceutical science - a complex of scientific knowledge about the research, properties, production, analysis of medicines and drugs, as well as the organization of pharmaceutical services and marketing. The value of technology is great. At the present time, 90% of all doctor's prescriptions account for the use of drugs for the diagnosis, prevention and treatment of various diseases. Pharmacies play an important role in providing the population with individually manufactured medicines.

For successful work in any field of science, technology and production, understanding and correct application of special terms is necessary. A term (lat. Terminus - limit, border) is a word or phrase that reflects certain concepts of any field of science, technology, etc. As science develops, the terminology is revised, the ordering, unification and standardization of terms is carried out.

II. METHODOLOGY

In pharmacy, as in any science, arbitrary interpretation of terms is unacceptable. They should fully reflect the meaning of the content they contain for objective perception and adequate assessment of the accumulated facts.

Pharmaceutical terminology as a terminological complex includes pharmaceutical terms (pharmacognosy, pharmaceutical chemistry, technology of dosage forms, organization, management and economics of pharmacy, etc.); chemical, physical, technical and medical sciences The main terms of pharmaceutical technology include: drug, drug substance, drug Relationship of the main terms of technology of dosage forms with the terms of other branches of science Basic concepts and methodology of the subject 35 form and drug (formerly medicine). The glossary of basic terms and definitions is formulated in the Federal Law.

Currently, there are more than 500 pharmaceutical terms, about 200 - technological, so the work on their ordering continues. Basic terms and concepts used in the technology of dosage forms:

- pharmacological agent - a substance or mixture of substances with established pharmacological activity, which is the object of clinical trials. After receiving positive results of clinical trials and approval by the authorized bodies of the Ministry of Health and Social Development of the Russian Federation for use, it receives the name "drug";
- medicinal product - a pharmacological agent approved by the authorized body of the relevant country in accordance with the established procedure for use with the purpose of prevention.
- medicinal substance (substance) - a medicinal product representing an individual chemical compound or biological substance;
- excipients - additional substances required for the manufacture of a medicinal product in a finished dosage form;
- medicinal herbal raw materials - herbal raw materials permittedby the authorized body in accordance with the established procedure for medical use;
- medicinal product - a medicinal product in the form of a specific dosage form;
- dosage form - a state that is convenient for use given to a drug or medicinal plant material, in which the necessary therapeutic effect is achieved;
- biopharmaceutical research - testing of various pharmaceutical factors that characterize the drug dosage form in relation to its bioavailability;
- stability - the property of a medicinal (or pharmacological) agent to maintain its physicochemical and microbiological properties for a certain time from the moment of its release;
- shelf life - the storage time of the medicinal product approved by the legislative body based on the results of a special study, during which the product retains its physicochemical, microbiological and therapeutic properties unchanged or changes them within the limits established for it, subject to the conditions storage;

• State Pharmacopoeia (GF) - a collection of monographs, methods of analysis and other regulatory requirements, approved by the competent health authorities of the respective countries;

• Pharmacopoeia Monograph (FS) - a regulatory and technical document that establishes the requirements for the quality of medicines or medicinal plant raw materials and bears the nature of the State Standard;

• temporary monograph or monograph of an enterprise (VFS or FSP) - a monograph approved for a limited period.

The term "Medicines" is the starting point among the basic terms for a pharmacist-technologist.

Medicines are substances used for the prevention, diagnosis, treatment of illness, prevention of pregnancy, obtained from blood, blood plasma, as well as human or animal organs, tissues, from plants, microorganisms, minerals, by synthesis methods or using biological technologies.

III. ANALYSIS AND RESULTS

Distinguish between: potent (list B), poisonous (list A), including narcotic, and non-potent drugs (substances, substances) of the general list. Medicines are extremely diverse in appearance, origin and composition (see Ch. 5). They serve as the starting material for the manufacture of drugs.

Individual medicinal substances (substances), sums of substances, medicinal plant raw materials, as well as industrially produced drugs can serve as pharmaceuticals for the pharmaceutical manufacture of drugs. Medicines (substances, substances) are used in certain doses. Distinguish between therapeutic (medicinal), toxic and lethal, or lethal (from Latin letum - death), doses. Therapeutic doses, in turn, are divided into threshold (small), medium (standard) and maximum (higher). The range of doses from the threshold to the maximum therapeutic dose is called the breadth of specific therapeutic action. The ratio of the maximum therapeutic dose to the threshold is called the index of specific therapeutic action.

To characterize the safety of the drug (substance) use the terms "therapeutic breadth" and "therapeutic index" are used.

• Therapeutic latitude refers to the range of doses from the minimum therapeutic to the minimum lethal.

• Therapeutic index is the ratio of the minimum lethal dose to the minimum therapeutic dose. In experimental pharmacology, the therapeutic index is defined as the ratio of the dose causing the death of 50% of experimental animals (LD50) to the average dose causing a specific pharmacological effect. For poisonous (list A) and potent (list B) substances, the highest (maximum) therapeutic doses for a single and daily intake are set.

IV. DISCUSSIONS

For some medicines indicate the doses not only for enteral, but also for injection. Medicines (substances), in addition to being assigned to lists A and B, can also be included in the list of narcotic substances, as well as substances that are subject to quantitative accounting. On the basis of their physicochemical properties, they can be included in the lists of odorous, coloring substances, etc. All these features must be taken into account by the pharmacist in the manufacture, storage and dispensing of drugs.

To characterize drugs, concepts such as "stability" and "shelf life" are used.

• Stability is the property of a medicinal (or pharmacological) agent to retain its physicochemical and microbiological properties for a certain time from the moment of its release.

• Shelf life - the storage time of a medicinal product approved by the legislative body based on the results of a special study, during which the product retains its physicochemical, microbiological and therapeutic properties unchanged or changes them within the limits established for it, subject to storage conditions.

• Excipients are additional organic or inorganic substances that are used in the production process of finished dosage forms to give them the necessary properties. Depending on the type of dosage form, these can be substances that increase the viscosity, surfactants (surfactants) and buffer substances, flavors, preservatives, stabilizers, fillers, etc.

• A dosage form is a condition that is imparted to a drug, which is convenient for use, in which the desired therapeutic effect is achieved. The manufacture of dosage forms from medicinal products is usually accompanied by giving them certain geometric shapes. For example, tablets are in the form of discs, pills are balls, candles are cones, etc.

V. Conclusion

Currently, there are a fairly large number of dosage forms. They differ from each other in consistency, appearance, manufacturing method, routes of administration into the body, etc. Thanks to the dosage form, the action of the medicinal substance (agent) can be accelerated or slowed down. An unsuccessfully chosen form reduces the effect, and in some cases worsens the patient's condition. For example, if benzylpenicillin is prescribed to a patient in the form of a solution for oral administration, then

due to the destructive effect of gastric juice, the effect of the drug will be weakened, and perhaps it will not be at all. If benzylpenicillin is injected, its therapeutic effect will be preserved.

The dosage form should provide a given duration of action (for example, the action of eye drops lasts 3-4 hours, eye ointments up to 12-14 hours, and ophthalmic medicinal films up to 2 days or more). It should be comfortable for the patient (for example, some injections can be replaced with inhalations or rectal dosage forms - suppositories, enemas, rectiols, rectal ointments).

• Medicines are dosed medicines in a specific dosage form. Previously, this term was understood as the well-known term "medicine" but by agreement with foreign countries, a single term "medicinal product" was adopted.

Sometimes it is difficult to draw a sharp line between the concepts of "drug", "dosage form", "drug", especially in cases where the technological processes to which drugs were subjected to the manufacture of dosage forms were simple. For example, sulfanilamide in one large package (rod, bag) is a drug (substance, substance). The same sulfanilamide, in powder form, suspended in individual doses, for example 0.3 g each, and packed in paper capsules with an indication of the method of administration, is a drug.

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