WAYS AND METHODS OF ADMINISTERING MEDICATIONS

Uzakova Salomatkhon Khaldaraliyevna
Head of the Department of General Professional Sciences Abu Ali ibn Sino Andijan Public Health Technical School Andijan, Uzbekistan

Abstract: *This article describes the importance and accuracy of the dose for effective and qualitative treatment of the patient by the doctor, as well as the amount of medication described in the prescription. Narcotic substances can enter the human body in various ways, therefore, the main ways of using the drug (enteral and parenteral) are considered, which depends on its properties, absorption rate, nature of action, duration of action, spectrum, and manifestation of side effects.*

Key words: *medicine, medication, dosage, route of administration.*

ПУТИ И СПОСОБЫ ВВЕДЕНИЯ ЛЕКАРСТВЕННЫХ СРЕДСТВ

Узакову Саломатхон Халдаралиевну
заведующий кафедрой общепрофессиональных наук Андижанский техникум общественного здравоохранения имени Абу Али ибн Сино Андижан, Узбекистан

Аннотация: *В данной статье описывается важность и точность дозы для эффективного и качественного лечения пациента врачом, а также количество препарата, описанного в рецепте. Наркотические вещества могут попадать в организм человека различными путями, поэтому рассматриваются основные пути применения препарата (энтеральный и парентеральный), что зависит от его свойств, скорости всасывания, характера действия, продолжительности действия, спектра и проявления побочных эффектов.*

Ключевые слова: *медицина, лекарство, доза, способы введения.*

INTRODUCTION

Drug therapy is a key component of the entire treatment process. Medicinal substances can have various effects on the human body (local, resorptive, etc.), which depends on such characteristics as doses of the drug, age, route of administration of the drug, duration of action, as well as taking into account the individual characteristics of the patient. The positive result of the treatment process is associated with the correct dosage of medications. A dose is defined as the amount of medicine administered to the body and exerting a specific effect on it. Depending on the method of action, the dose can be minimal, therapeutic, toxic, and lethal [1,6].

The minimum effective (threshold) dose is the minimum measured amount of a drug that contributes to its therapeutic effect on the human body [4-6].

A therapeutic dose is a drug composition that is greater than the threshold effective dose, which can lead to complete recovery of the patient without pathological effects. This dose is most often used in medical practice, as it has an optimal prophylactic therapeutic effect for a large number of patients. A toxic dose is a dose that can cause pathological changes in the human body, but does not lead to death.

A lethal dose is a lethal dose of a medication. Depending on the treatment method and the properties of the medication, medications can be introduced into the human body in various ways. Let us consider the main ways of administering the drug, from which its properties, absorption rate, nature of action, duration of action, and the spectrum and manifestation of side effects depend. The enteral route of drug administration means the administration of the drug through the digestive tract. Oral administration (Latin «peros» oral) is the most common, natural, and convenient method of drug administration to the body.

Absorption of the drug is most often carried out in the proximal sections of the small intestine, rarely in the stomach. The rate of its entry into the body depends on the time of food intake, the volume and composition of the portion. It should be known that medications taken after meals have the ability to interact with some components of food, preventing normal absorption. If the medicine is taken on an empty stomach, it can have side effects. It should be remembered that medications should not be taken orally for gastrointestinal diseases, and treatment for liver and gallbladder diseases will not give the expected result.

The sublingual (sublingual) pathway implies a high rate of drug absorption due to the high blood flow of the oral mucosa supplied by the external carotid artery and its branches. With such administration, the drug does not decompose under the influence of gastric juice and liver enzymes. Rectal administration is the administration of a drug into the rectum, where absorption begins due to the vascularization of the rectal mucosa and it passes through the liver. This method is rarely used in gastrointestinal diseases and can cause irritation of the rectal mucosa, as well as problems with drug retention in the intestines in the human category (children and the elderly).

With this method of administration, the speed and strength of the effect are higher than with oral administration. Parenteral administration method - a method of delivering a medicinal product to the bloodstream after passing through the gastrointestinal tract. Such pathways include all types of injections, including large-volume injections such as inhalations and infusions. Parenteral administration is divided into injectable and non-injectable [2].

Injection therapy is good because it can be used in emergency situations. In such cases, when the patient is unconscious, vomits profusely, or the digestive system is disrupted. Tissue injections are administered intravenously, intramuscularly, and subcutaneously.

Intravenous administration is used for quick and clear results, as this method immediately enters the bloodstream. To prevent toxic effects, potent drugs should be

diluted with an isotonic solution and administered slowly into the cubital vein. Intramuscular injection is most often used in medicine, the therapeutic effect begins after 10-30 minutes. This type of injection is less painful and is administered directly into the muscle. After the intramuscular injection, the drug is absorbed, enters the bloodstream, and the treatment process begins [3].

Subcutaneous administration of the drug is carried out directly subcutaneously, more precisely, into the subcutaneous adipose tissue. Aqueous and oily solutions can be administered subcutaneously. The therapeutic effect begins more slowly, but the duration of the effect can be prolonged, i.e., it is possible to create a drug depot. Non-injectable methods include: inhalation, application. The inhalation route is used in the treatment of bronchopulmonary diseases, in the administration of inhalation anesthesia and oxygen therapy. Inhalations are carried out using the following devices - from ordinary spray cans to stationary devices. The drug is administered in the form of gases, vapors, and aerosols. The penetration depth of aerosols into the respiratory tract depends on the size of the particles [4].

Skin tract (application). The outer epidermal layer of the skin contains hyaluronic acid; the enzyme hyaluronidase breaks it down => the skin's permeability to chemical agents increases. Epidermal cells also contain keratin protein, which is resistant to enzymes and weak acids, but hydrolyzes under the influence of alkalis. Therefore, alkaline solutions easily soften the skin. The dermis is covered with capillaries, resembling a porous membrane, and easily transmits medications. Skin is a strong lipid membrane. Hydrophilic substances (sugars, ions) are not absorbed by the skin and have a superficial effect.

Most antiseptics and antibiotics are such agents. Lipophilic substances (ethyl alcohol, steroid hormones, benzocaine) pass through the skin proportionally to their solubility in fats, but slowly. Drugs for external use are prepared on the basis of ointments, among which pork fat, lanolin, and sperm acetate are closest to human skin fat. Ointments, gels, creams, and liniments based on them have high shrinkage capacity. The absorption of drugs through the damaged skin is sharply enhanced [5].

The route of administration of the drug into the nose consists of administering the drug into the nasal mucosa (drops), which is rich in blood vessels for local application in nasal discharge. The drops contain substances that constrict blood vessels; therefore, they should not be applied frequently to prevent spasm, dryness of the submucosal vessels, and weakening of its barrier function. Therefore, drugs can be administered intranasally only at the peak of inflammation for a short period: no more than 2-3 days in children and no more than a week in adults. This method is very simple and convenient for the patient.

The conjunctival route is the administration of a medication into the conjunctival sac in the form of a solution, ointment, or eye film for the treatment of eye diseases (glaucoma, cataracts, traumatic conjunctivitis). When using eye drops, it should be remembered that the conjunctival sac cannot accommodate more than two drops, the

rest falls outward or into the lacrimal duct. The dripping is carried out under the lower eyelid (for this it is pulled), while the gaze is directed upwards, after which the eyelids are closed for 2-3 minutes [6].

Conclusion. The patient's complete and effective recovery depends on the exact dose of the medication. No adverse effects. The pharmacist should always check the prescribed dose and the amount of medicine prescribed by the doctor in the prescription. It was established that the route of drug administration can be different and should be decided individually in each specific case, taking into account all the features of the course of the disease and the subsequent effect of treatment, i.e., the possible complications associated with the entry of the active substance into the focus of inflammation and its effectiveness.

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