patients have early stages and go to later stages of the disease, and some - on the contrary, from late stages to the previous, through active treatment.

Results and discussion . Markovian models are estimated by matrix methods, that is, contour modeling or the Monte Carlo method. The time interval of the study is divided into identical units of time, which are called Markov cycles. The duration of the cycle is used so that the time interval has a certain value (for example, the stage of the disease). During each cycle, the patient moves from one state to another, that is, they determine the percentage of patients at each stage of the disease that is cured, complicated and / or dying. The Markov process is determined by the distribution of probabilities between the initial states and the degree of transition probability for individual patient groups, which is indicated in the table.

The transition between health conditions in the Markov model

Transition from one state to another	Jump to j			Sum
	Health status	Development of the disease	Death	
Health status	1 – (tpR + tpS_n)	tp R	tpS_n	1
Development of the disease	0	1 - tpS_z	tpS_n	1
Death	0	0	1	1

tpR - probability of transition from health to disease state;

tp S_n- probability of death due to natural causes;

tpS_z - probability of death due to the disease.

When constructing the simulation model of Markov, data is integrated from different sources and an increase in the coefficients of cost-efficiency is established.

Conclusions. Thus, using the Markov model in a pharmacoeconomic analysis allows solving a number of problems. In particular:

• analysis of the effectiveness and safety of the use of drugs at all stages of medical care;

• substantiation of the choice of drugs for the development of protocols for patient management, lists of basic medicines, forms of insurance;

• Formation of clinical and economic requirements at the state level to efficiency, safety, exchange of medicines;

• development and improvement of pharmacological services for patients with inpatient and outpatient treatment;

• Pharmacoeconomic substantiation of normative documents of the system of standardization of medical technologies taking into account the territorial features of Ukraine;

• Formation of the basis of the health insurance system.

PHARMACOKINETICS OF THE PROLONGED MEDICINAL FORMS.

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Introduction. Medicinal form - it is rational from a pharmacological point of view, convenient for receiving and storing the form of a medicinal substance, which provides the optimal therapeutic effect with a minimum of side effects. The dosage form is the structural unit of both pharmacotherapy and industrial production. The most important task in developing and manufacturing the dosage form is to provide optimal conditions for the release and subsequent absorption of the substance. The development of prolonged dosage forms, which can provide long-term action of a medicinal product with simultaneous decrease in its

daily dose, is of great urgency today. Drugs of this type provide support in the blood of a constant concentration of the active substance without peak oscillations.

Aim. One of the prolonged dosage forms is pills containing one or more medicinal ingredients, arranged in layers alternating with excipients. In this case, the adjuvants block the release of new portions of the drug until its complete destruction under the influence of various factors of the gastrointestinal tract (pH, enzymes, temperature). In the form of such tablets, antagonists of calcium (nifedipine, felodipine, diltiazem), nitrates (isosorbide dinitrate, isosorbide mononitrate), beta-adrenergic blockers (metoprolol, oxprenolol), and others are issued. The purpose of this study is to examine the pharmacokinetics of multilayered tablets.

Materials and methods. A pharmacokinetic model study with a camera was conducted. It is believed that a stomach (chamber) enters a two-layer tablet. The first portion of the drug starts to be absorbed into the blood (chamber) immediately, and the second one in an hour t_0 .Such a model is described using two systems of differential equations given below.

$$\begin{cases} \dfrac{dM_1'}{dt} = -k_{in} * M_1' \\ \dfrac{dM'}{dt} = k_{in} * M_1' - k_{el} * M' \end{cases} \qquad (1)$$

$$M_1'(0) = \alpha * M_0\,, \qquad M' + M_1' = \alpha * M_0$$

Where M_1' -the amount of drug in the chamber, which is the proportion of the first portion of the drug;
M' - the amount of preparation in the chamber, which is the proportion of the first portion of the drug;
t- hour;
k_{in}- the absorption constant of the drug;
k_{el}- is the elimination constant;
α-the proportion of the first dose of the drug in its total amount;
M_0 - total amount of the drug;

$$\begin{cases} \dfrac{dM_1''}{dt} = -k_{in} * M'' \\ \dfrac{dM''}{dt} = k_{in} * M_1'' - k_{el} * M'' \end{cases} \qquad (2)$$

$$M_1''(t_0) = (1-\alpha) * M_0\,, \qquad M'' + M_1'' = (1-\alpha) * M_0$$

Here M_1'' - the amount of preparation in the chamber, which is the fraction of the second portion of the drug;
M''- the amount of preparation in the chamber, which is the fraction of the second portion of the drug;
H(t) – is the Heaviside function;
M –total amount of drug in the chamber.
The solution of systems (1), (2) has the form:

$$M' = \frac{\alpha M_0 * k_{in}}{(k_{in} - k_{el})} * (e^{-k_{el}*t} - e^{-k_{in}*t})$$

$$M'' = \mathrm{H}(t - t_0) * \frac{(1-\alpha) * M_0 * k_{in}}{k_{in} - k_{el}} * (e^{-k_{el}*(t-t_0)} - e^{-k_{in}(t-t_0)})$$

$$M = M' + M''$$

Here M – is the total amount of drug in the chamber.

Results and discussion. Select some conditional values for the model parameters. Let k_{in}= 2 h^{-1}, k_{el}= 0.5 h^{-1}, M_0= 1g, t_0 = 2 h. In Fig. 1, a graph of the dependence $M(t)$ for α = 1, is given, which corresponds to the usual tablet (the entire drug is immediately taken up in the stomach). In Fig. 2, this dependence is given for α = 0.7. Analyzing these dependencies, it can be seen that the use of two-layer tablets leads to a significant increase in the time of their effective action.

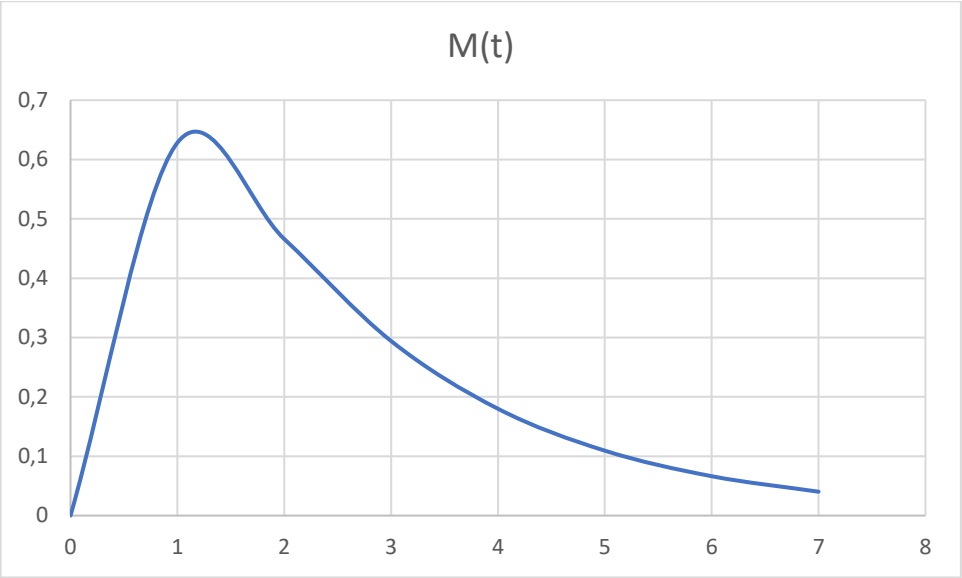

Fig.1

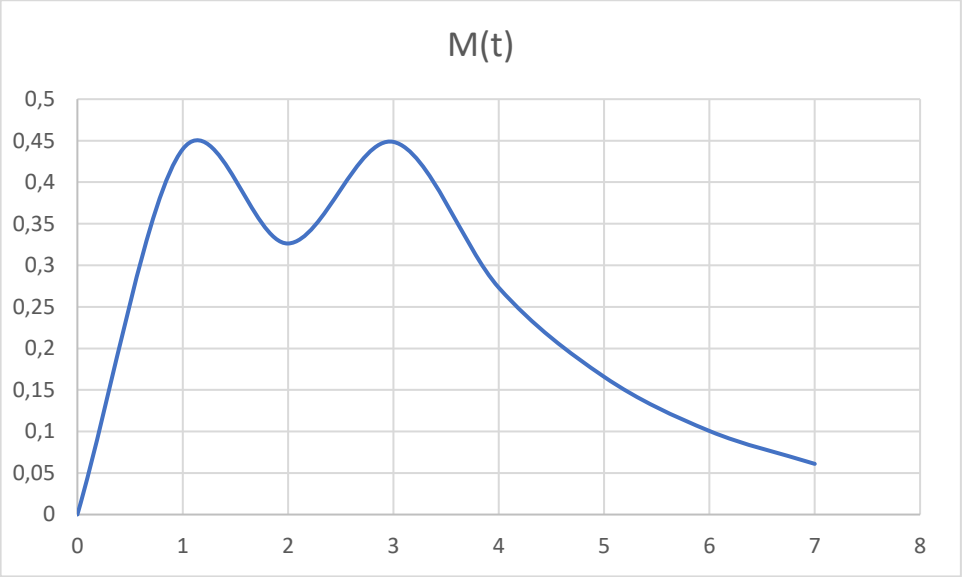

Fig.2

Conclusions. In the considered model, it is possible to achieve the necessary parameters depending on the time of the concentration of the active substance in the blood, varying the technological parameters α and t_0.

THE ROLE OF HORMONES IN MEDICINE

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Introduction. The human body is a complex system that performs a huge number of operations. A significant role in the correct organization of body work is played by hormones. These are catalysts of biochemical processes that are produced by the glands of the internal secretion. There are various types of hormones, and each of them performs a certain function. It is impossible to imagine modern methods of treatment of certain diseases without hormonal therapy. Hormones subordinate to a single chain and synchronize the jewelry biological work of each organ and system. The importance and urgency in the treatment of certain ailments may be dominant over side effects.