## DEVELOPMENT OF THE COMPOSITION OF EXTEMPORAL SUPPOSITORIES WITH ANTI-INFLAMMATORY ACTION

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**Introduction.**Musculoskeletal pathology attracts the increasing attention of the world community due to its prevalence. WHO reports that joint pain is noted in 30 % of the population. The problem of pain remains one of the fundamental questions of medicine.Since the beginning of the XX century there are more and more people with inflammatory and degenerative diseases of the joints. There is a significant aging of the population, namely this category is the main consumer of NSAIDs. Among the various methods of administering drugs (D) into the body, rectal is of particular interest for practical medicine, as it combines the advantages and features of oral and parenteral. At the same time, about 80 % of the drug enters the general bloodstream through the system of the lower and middle hemorrhoidal veins, bypassing the liver and not being exposed to the enzymes of the gastrointestinal tract (GIT).

**Aim.**The aim is the development of the composition of combined extemporal suppositories for the treatment of inflammatory diseases of the organs of movement.

**Materials and methods.**To conduct the study the proper model samples of suppository bases and combined suppositories were prepared. There were used physical and chemical, technological, biopharmaceutical research methods in accordance with the requirements of State Pharmacopoeia of Ukraine.

**Results and discussion.**In the process of research, the technological and physical and chemical properties of lipophilic bases for the creation of combined suppositories of anti-inflammatory action to substantiate the optimal composition of the carrier were studied. Based on the evaluation of a number of parameters of lipophilic bases, such as melting temperature, solidification temperature, time of complete deformation, the optimal hydrophobic carriers were determined to create an effective rectal dosage form.The influence of surface-active substances (surfactants) on the degree of release of NSAIDs from rectal suppositories was studied. The composition of the combined extemporaneous suppositories for the treatment of inflammatory diseases of the organs of movement was developed.

**Conclusions.**Using biopharmaceutical research methods, the selection of the components of the basis for rectal suppositories for the treatment of pathologies of the musculoskeletal system was carried out. The necessity of introducing into the composition of surfactants in order to improve the quality characteristics of the dosage form was showed.

## PROSPECTS FOR NITROGLYCERINE USING IN OINTMENTS FOR TREATMENT OF HEMORRHOIDS

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**Introduction.** Hemorrhoids are called diseases of the rectum, in which there is an increase and excessive expansion of hemorrhoidal veins. This is due to their thrombosis, varicose enlargement and inflammation. The frequent concomitant disease of a hemorrhoids is an anal fissure. Anal fracture is one of the most common problems with the proctologist. The crack represents a painful defect of the mucous membrane of the anal canal and brings great discomfort for the patient.

The choice of drugs for local therapy is large (proctosedil, relief advans, ultraproct, proctoglyvolenol, etc.), but almost all of these drugs have a local anesthetic effect, but none of them affects the increased tone of the internal anal sphincter – the main link pathogenesis in this disease.

**Aim.** The purpose of our research was to justify the composition of the extemporal ointment with nitroglycerine for the treatment of hemorrhoids and anal fissures.

**Materials and methods.** For preparation of the ointment, it was suggested to use a sterile solution of nitroglycerine, benzocaine and an emulsion ointment base containing fish oil.

**Results and discussion.** Among the non-surgical methods for treating hemorrhoids and anal fissures, the most modern is the medication relaxation of the internal sphincter of the rectum by various pharmacological agents. A well-known method of pharmacological sphincterotomy based on the local application of isosorbide.

There are not ointments for the treatment of hemorrhoids that contain nitroglycerine In the Ukrainian pharmaceutical market virtually. Nitroglycerine acts directly on the smooth muscle of the predominantly venous and arterial vessels through a nitrate receptor located in the smooth muscle of the vessel wall. Nitroglycerine in the smooth muscle enzymatically converts to form nitric oxide, which stimulates the activity of guanylate cyclase. It is responsible for the formation of cyclic guanosine-3'5'-monophosphate, which is a relaxation mediator. Medicinal relaxation of the internal sphincter with nitroglycerine ointment does not lead to the development of anal incontinence. That is why it is expedient to use nitroglycerine in ointments from hemorrhoids.

For the preparation of anti-hemorrhoidal ointments for industrial and pharmacy production, the known fat base – vaseline, which prevents penetration of medicinal substances introduced into biological tissues – is a smooth muscle of the anal canal. This significantly reduces the effect of local treatment. Vaseline negatively affects the epithelium of the anal canal, clogging the pores of tissues, the concentration of the active substance when passing through the mucous membrane and submucosal layer drops sharply and decreases the rate of its penetration. In addition, on the surface of the tissues of the anal canal, the fixation of medicinal compositions on the basis of vaseline is difficult and there is a rapid removal of it from the affected surface, and the effectiveness of treatment depends on the creation of the necessary concentration of active substances in the muscle of the anal sphincter.

During development of the ointment composition with nitroglycerine, it was proposed to use an emulsion base, which does not exhibit such properties as vaseline. It is lighter, does not clog pores of the epithelium of the anal canal, it also releases the substance faster, which means that the pharmacological effect is faster.

**Conclusions.** On the basis of the conducted research it can be concluded that the using of nitroglycerine in the composition of ointments on an emulsion basis will expand the range of finished medicines for the treatment of hemorrhoids and anal fissures.

## IMPROVEMENT OF OINTMENT COMPOSITION FOR THE TREATMENT OF ARTHRITIS

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**Introduction**. According to WHO, musculoskeletal diseases (rheumatoid arthritis, Bechterew's disease, deforming osteoarthritis, arthropathy, sprains) as the cause of disability and mortality are ranked 4th in the world after cardiovascular, cancer and diabetes. According to statistics, more than 30% of the population of the planet have certain disorders in the work of joints.

According to the protocol for the provision of medical care in the treatment of arthritis used mainly non-steroidal anti-inflammatory drugs, glucocorticosteroids, antibiotics.

Despite the wide range of medicines in pharmacies of Ukraine, many of them have a number of shortcomings and, in addition to the therapeutic effect, have a side effect on the body of the patient.

Undoubtedly, the medicines of individual extemporaneous preparing have advantages over the medicines of industrial production. When they are manufactured, a minimum amount of auxiliary substances is used, which reduces the probability of occurrence of side effects.

We conducted an analysis of the extemporaneous formulation used in the treatment of inflammatory diseases of the joints. The analysis was carried out during the practice on pharmacy technology, studying the