УДК 615.46:547.995.12

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# CLINICAL AND PHARMACOLOGICAL CHARACTERISTICS OF CHITOSAN-BASED COMPOSITE MEDICAL PRODUCTS

Improvement of healthcare systems has led to a significant increase in life expectancy and quality of life for the population. Surgery, being one of the most important components of modern medicine, plays an important role in reducing morbidity and improving health.

However, the imbalance in the availability and quality of surgical care between various changes and socio-economic working conditions directly correlates with mortality and disability rates. Epidemiological studies show that even forms with a high degree of curability can lead to severe consequences in the absence of timely and safe surgical intervention [1].

Thus, ensuring equal access to high-quality surgical care is a decisive factor in achieving public health goals.

An important result of surgical intervention is the healing of the access site to the internal organ. For these purposes, binders and coatings with antimicrobial substances were used, it was proposed to use chemical products based on chitosan.

To date, commercial wound dressings based on chitosan have been developed. These include "Choriohit", "Beshchitin", "ChitiPak", "Hitodin", "Hitoflex", "Hitopak S", "Hitopoli", "Krabion", "GemKon", "Tegasorb", "Tegaderm", "TraumaStat", "Celox", and "Kollakhit". The Republic of Belarus has developed medical products "Early antimicrobial coating with chitosan nanofibers" and "Early wound healing coating with chitosan nanofibers" containing an internal layer of chitosan nanofibers.

Recommendations for the use of the corresponding medical products include: treatment of superficial wounds and burns of various etiologies; formation of a protective film to prevent further damage to the skin and the spread of microbial infection; acceleration of healing of integumentary tissues after injury; reduction of redness, visual and pain sensations.

Chitosan medical products are also used to fix external cameras. The combination of hemostatic [2] and antimicrobial properties of chitosan is of particular importance in modern material content. Chitosan hemostatic agents (e.g. sponges, dressings, powders) are widely used in medicine, and their mechanism

of action is confirmed by a clinical point of view. Chitosan dressings "Celox" and "HemCon" are used to fix places in emergency situations. Contraindications to the use of chemicals based on chitosan are chemical reactions.

Allergic reaction to chitosan, in particular a reaction to the protein component linked directly through the deacetylated group of monomers in the composition of chitosan, since when treating chitosan with alkalis it is impossible to achieve complete separation of the protein component, but a high concentration of alkalis in the reactor increases the degree of degradation of chitosan into oligomers.

Allergic reactions can also occur on auxiliary substances, primarily on antimicrobial preservatives (sodium benzoate, parabens). It is not recommended to use chitosan-based medical products when food products of marine origin are detected, since crystalline changes in the composition of chitosan and particles of marine animals may be observed.

The studies conducted on the use of chitosan for medical purposes do not allow us to fully judge the safety of chitosan-based chemical products. Therefore, these drugs should not be used during pregnancy, lactation and in pediatric practice. On the other hand, the use of these products is not limited when using vehicles and other work that requires increased attention. The positive quality of chitosan-based medical products will also be the minimum number of drug interactions.

Thus, chitosan with different molecular weights and degrees of deacetylation can be effective against a wide range of effects, including bacteria and fungi. Its activity varies depending on the form (solution or gel) and the characteristics of the molecules.

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