THE STUDY OF BIODEGRADABLE FILMS FOR THE TREATMENT OF BURN WOUNDS

Zharkynbek G.N., Master's student, 2nd year
Research supervisor – Doctor of Technical Sciences,
Professor **M.Zh. Kizatova**
Kazakh National Medical University named after S.D. Asfendiyarov,
Almaty, Kazakhstan

Treatment of burns requires special materials that can protect damaged tissues, promote healing and prevent infection. One of the promising directions in the treatment of burns is the use of biodegradable films. The transdermal therapeutic system (TTS) is a metered−dose mild dosage form for external use in the form of patches or films, which slowly releases the drug. The transdermal form is convenient because the patch is glued to the skin, and the medicine quickly penetrates through the upper layers of the skin (dermis) into the blood (blood vessels). Biodegradable films are made from natural or synthetic polymers that decompose in the body, which reduces the risk of allergic reactions and eliminates the need to remove them. They are thin layers of polymer material that can decompose under natural conditions of the body. The main components of such films can be natural polymers such as alginate, chitosan, pectin, gelatin, collagen and synthetic polymers, for example, polylactide (PLA) or polyglycolide (PGA).

Current research is aimed at developing films with improved characteristics, such as enhanced antimicrobial activity, improved elasticity and the ability to control the release of drugs. For example, the possibility of using silver nanoparticles or extracts of medicinal plants to enhance the antimicrobial properties of films is being actively studied. In addition, a promising direction is the creation of biofilms using natural plant extracts, such as rosehip oil extract (*Rosa majalis*), which has antioxidant, anti-inflammatory and wound healing properties. These extracts can be added to the films to enhance their therapeutic effectiveness.

Modern research is aimed at improving the characteristics of these films in order to increase their effectiveness and safety. The use of natural ingredients, such as extracts of medicinal plants, also opens up new opportunities for the development of more effective and safe materials for the treatment of burns.