



MINIMALLY INVASIVE TECHNOLOGIES IN MODERN SURGERY: ADVANTAGES AND PROSPECTS

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Abstract

The article discusses modern minimally invasive technologies (MIT) in surgery, their advantages and prospects for development. Various types of MIT are analyzed, including laparoscopy, thoracoscopy, and robotic systems, as well as the impact of these technologies on surgical outcomes and patients' quality of life.

Keywords: minimally invasive technologies, laparoscopy, robotic surgery, surgery, postoperative period

Introduction

Minimally invasive technologies have become one of the most significant achievements of modern surgery. Unlike traditional open surgeries, MIT allows interventions to be performed through small incisions or punctures, which significantly reduces surgical trauma, shortens recovery time, and decreases the number of postoperative complications. The development of laparoscopy, thoracoscopy, and robotic surgical systems opens new opportunities for treating a wide range of diseases, including oncological, gynecological, urological, and other pathologies. The use of MIT is becoming the standard in several surgical fields, requiring specialists to acquire modern skills and knowledge.

Materials and Methods

The study analyzed the results of clinical trials and reviews devoted to the use of minimally invasive methods in surgery. Technical features of laparoscopic and



robotic systems were considered, along with comparative indicators of efficiency and safety compared to traditional methods. Data were examined regarding operation time, postoperative complications, length of hospital stay, and patients' quality of life after interventions using MIT.

Results

The use of minimally invasive technologies significantly reduces postoperative pain, decreases blood loss, and lowers the risk of infectious complications. The length of hospital stay is reduced by 30–50% compared to open surgeries. Robotic surgical systems provide high precision of manipulations, expand visualization capabilities, and reduce surgeon fatigue, which is especially important during complex and prolonged operations. However, the implementation of MIT requires substantial investments in equipment and staff training, which limits their availability in some healthcare institutions.

Conclusion

Minimally invasive technologies represent a promising direction in the development of surgery, contributing to improved clinical outcomes and enhanced patient quality of life. Their widespread implementation requires the expansion of educational programs, improvement of the technical base, and further research into their effectiveness and safety. The integration of MIT into clinical practice contributes to the formation of a new paradigm of surgical treatment focused on minimizing trauma and accelerating rehabilitation.

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