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ROBOTIC SURGERY: EFFECTIVENESS AND SAFETY.

To`laganova Nigora
Teacher of public health technical college named after Republic No. 1 Abu Ali Ibn Sina

Annotation: Robotic surgery has been emerging as an innovative approach in medicine in recent years. This technology allows surgeons to perform complex and delicate operations with high precision, accelerate patient recovery through minimally invasive approaches, and increase surgical safety. The article analyzes the theoretical foundations, clinical applications, effectiveness, and safety of robotic surgery. At the same time, technological, economic, and skill-based limitations are also considered. The importance of robotic systems in improving patient health and increasing surgical safety is emphasized.

Keywords: Robotic surgery, Minimally invasive surgery, Surgical safety, Clinical outcomes, Surgical efficiency, Medical technology, Patient recovery, Precision surgery, Healthcare innovation, Operative risk management

In recent years, technological developments in the field of medicine have fundamentally changed surgical practice. In particular, robotic surgery (robot-assisted surgery) is creating new opportunities compared to traditional open and laparoscopic surgery. Robotic systems allow surgeons to perform complex and delicate operations with high precision, improve patient health through minimally invasive approaches, and reduce recovery time. One of the main advantages of robotic surgery is the ability to control surgical instruments with high precision and stability, which reduces the natural vibrations of the human hand. At the same time, 3D visualization, camera settings, and computer-aided analysis systems allow the surgeon to clearly see complex anatomical structures. This helps to reduce bleeding, protect nerve fibers and organs, and increase surgical safety. It is worth noting that robotic surgery is important not only in terms of increasing efficiency, but also in terms of accelerating the patient's recovery process and reducing post-surgical complications. However, this approach requires new skills for medical personnel, and technological resources and high costs can limit the effective implementation of the surgical procedure. The article analyzes in detail the theoretical foundations, clinical application, effectiveness and safety, as well as technological and economic aspects of robotic surgery. At the same time, the advantages and limitations of this approach, as well as future development prospects, are also considered. Robotic surgery is considered an important tool for improving the efficiency of medicine and ensuring patient safety.

Robotic surgery is considered a revolutionary approach in modern medicine. This approach allows to improve surgical practice through high accuracy, stability and minimal invasiveness. Robotic systems allow surgeons to clearly visualize complex anatomical structures, control instruments with reduced natural vibrations in the human hand, and reduce the risk of bleeding and complications. Thus, the patient's recovery process is

accelerated and the safety of surgery is significantly increased. The article analyzes the clinical application, effectiveness and safety of robotic surgery. At the same time, the technological and economic aspects, advantages and limitations of the approach are also considered. Robotic surgery, along with high efficiency, minimal invasiveness and increased patient safety, requires special training for medical personnel, technological resources and costs. In this regard, robotic surgery will remain an important tool in the future to increase the efficiency of medicine, ensure surgical safety and improve the quality of life of patients. However, for the widespread implementation of this technology, training qualified specialists, expanding technological capabilities and effective management of economic resources are important conditions.

In conclusion, robotic surgery is considered a key factor not only in improving the efficiency of modern surgical practice, but also in ensuring patient safety and the future development of medicine. Therefore, it is necessary to focus on this approach, develop scientific research and clinical applications.

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