



Telemedicine And Artificial Intelligence, Early Detection And Prevention Of New Diseases In Prophylaxis Medicine

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Abstract. Developments in the field of telemedicine and artificial intelligence play an important role in the early detection and prevention of new diseases in modern medicine. This article covers the main aspects of telemedicine, the use of artificial intelligence in diagnostics and their impact on preventive medicine based on scientific sources.

Keywords: telemedicine, artificial intelligence, preventive medicine, early diagnosis, disease prevention.

INTRODUCTION

Early detection and prevention of diseases is of great importance in modern medicine. Preventive medicine is one of the important areas of the healthcare system, which is aimed at improving the general health of the population and preventing chronic diseases. In recent years, advanced technologies in the field of telemedicine and artificial intelligence have been effectively used in this area.

MAIN PART

Telemedicine is a system that allows for the provision of medical services remotely, which is of great importance for patients with limited access to medical institutions. According to the World Health Organization (WHO), about 50% of the world's population does not have full access to medical services. Telemedicine helps to increase the number of medical consultations and optimize the services provided by doctors to patients. During the 2020 pandemic, the use of telemedicine platforms increased by 60 percent, and these services have reached the point of replacing conventional diagnostics (1).

Telemedicine has been used to monitor chronic diseases such as cardiovascular disease, diabetes, and high blood pressure. For example, studies conducted in the United States have shown that telemedicine monitoring of heart failure patients reduced hospitalizations by 40 percent (2). Such technologies allow doctors to constantly monitor the patient's condition and take urgent measures.

Artificial intelligence is revolutionizing diagnostics. For example, according to a study published in the journal *Nature Medicine* in 2021, image analysis systems based on artificial intelligence achieved 94.5 percent accuracy in detecting breast cancer. This shows that it is significantly more effective than traditional radiological analysis (3).

The use of artificial intelligence in the early detection and prevention of genetic diseases is also of great importance. For example, by analyzing the human genome, a predisposition to Parkinson's disease can be determined. According to a study conducted by the US National Institutes of Health, the accuracy of AI in predicting the likelihood of developing the disease



has reached 85% (4). Such technologies are creating the opportunity to create individual prevention programs for patients.

In the field of computed tomography (CT) and magnetic resonance imaging (MRI), artificial intelligence is being used to create automated diagnostic systems. According to the results of a study conducted by Chinese scientists, AI has achieved up to 98% accuracy in diagnosing COVID-19 pneumonia (5). This will reduce the workload of doctors and allow for rapid diagnosis of patients.

SUMMARY

Telemedicine and artificial intelligence are becoming an integral part of modern medicine. While telemedicine allows patients to receive medical advice remotely, artificial intelligence is increasing the possibilities of diagnostics and early detection of diseases. In particular, early diagnosis through genetic analysis and automated imaging analysis and the development of individual prevention strategies are leading to great achievements in the field of medicine. Further development of these technologies in the future will serve to improve the healthcare system and prevent diseases.

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