

DIAGNOSTIC TECHNOLOGIES

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Annotation: *This article covers the role of diagnostic technologies in modern medicine, their types, principles of operation and practical significance. The laboratory, instrumental, image, functional and molecular-genetic methods used in the diagnostic process are analyzed in detail. The role of artificial intelligence and digital technology in diagnostics will also be considered.*

Key words: *Diagnostics, laboratory tests, instrumental methods, MRI, CT, ultrasound, artificial intelligence, medical technology, genetic diagnostics, functional testing.*

Development of modern medicine without diagnostic technologies is unthinkable. Diagnosis is an important stage in the early detection of diseases, the correct diagnosis and the organization of effective treatment. As a result of the development of science and technology, diagnostic methods have been significantly improved.

With the help of diagnostic technologies, diseases are not only diagnosed, but also assessed their stage of development, severity and complications.

1. Concept of Diagnostic Technology

Diagnostic technologies are a set of methods, tools and techniques used to detect, analyze and monitor diseases.

They perform the following functions:

Diagnosis of the disease

Confirmation of the diagnosis

Evaluation of the effectiveness of the treatment

Preventive contr

2. Laboratory diagnostics

Laboratory diagnostics are carried out through the examination of biological materials.

Main types:

General blood analysis

Biochemical Leakage

Immunologic Tests

PCR diagnostics

Advantages:

High Precision

Early detection

Disadvantages:

Additional investigation may be required

3. Instrumental diagnostika

Instrumental diagnostics are carried out with the use of special apparatus.

Examples:

X-ray

ECG

Endoscopy

UTT

Advantages:

Visual imaging of organs

Disadvantages:

Radiation hazards in some cases

4. Pictorial diagnostics

Illustrative diagnostics give an accurate picture of the internal organs.

The main methods:

Computed tomography (CT)

Magnetic Resonance Imaging (MRI)

Advantages:

High Precision

Detailed image

5. Functional diagnostics

Functional diagnostics assesses the functioning of organs.

Examples:

EEG

Spirometry

Stress tests

6. Genetic and molecular diagnostics

These methods identify the genetic basis of diseases.

Examples:

DNK tahlili

Gene mutations

Oncomarkers

7. Modern diagnostic technologies

Today, the following innovations are widely used:

Sun'iy intellekt

Telemeditsina

Mobile monitoring devices

8. Importance of diagnosis

Early detection

Correct diagnosis

Treatment optimization Conclusion

Diagnostic technologies are one of the most important areas of medicine and play a crucial role in the detection and treatment of diseases.

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