

ASSESSING NEUROHORMONAL AND FUNCTIONAL PARAMETERS

**Ergasheva Nargiza Obidjonovna,
Tillayeva Fotima Nuritdinovna**

*Center for the development of professional qualification of medical workers
Tashkent, Uzbekistan*

Modern medicine and physiology increasingly rely on an integrated approach to assessing the body's condition, which incorporates both neurohormonal and functional indicators. Understanding the differences and interconnections between these types of measures is crucial for diagnosing, preventing, and selecting appropriate treatments for various diseases.

1. Concept of Neurohormonal Indicators

Neurohormonal indicators reflect the activity of the hormonal system and the interplay between the nervous and endocrine systems. They include levels of hormones, neuropeptides, and other signaling molecules that regulate physiological processes.

Examples of neurohormonal indicators:

Cortisol - a marker of stress and hypothalamic-pituitary-adrenal system function.

Adrenaline and noradrenaline - reflect sympathetic nervous system activity.

Insulin and glucagon - regulate carbohydrate metabolism and energy balance.

Serotonin and dopamine - neurotransmitters affecting mood and cognitive function.

Neurohormonal indicators provide a direct insight into the biochemical and endocrine processes occurring in the body.

2. Concept of Functional Indicators

Functional indicators assess the ability of organs and systems to perform their physiological roles. They evaluate the body's responsiveness to internal and external stimuli, as well as the dynamic performance of the cardiovascular, respiratory, and nervous systems.

Examples of functional indicators:

Blood pressure and heart rate - cardiovascular function.

Respiratory rate - lung function.

ECG and echocardiography (EchoCG) - cardiac conductivity and contractility.

Physical endurance tests and functional challenges (e.g., orthostatic test) - adaptive responses of the body.

Functional indicators demonstrate not chemical activity, but the actual performance of organs and systems in real time.

3. Comparative Characteristics

Essence: Neurohormonal indicators reflect the biochemical activity of hormones and mediators, whereas functional indicators show the performance of organs and systems under physiological or external load.

Measurement Methods: Neurohormonal indicators are measured through blood, urine, or saliva tests, as well as immunological assays. Functional indicators are assessed using instrumental methods such as ECG, pulse monitoring, tonometry, and various functional tests.

Informative Value: Neurohormonal indicators reveal early changes and hidden imbalances in the body, while functional indicators demonstrate the real adaptation of the organism to stress and manifest clinical symptoms.

Variability: Neurohormonal measures tend to fluctuate frequently throughout the day, being influenced by stress and hormonal rhythms. Functional measures are generally more stable and reflect the physiological capacity of body systems.

Applications: Neurohormonal indicators are used for diagnosing endocrine and metabolic disorders and monitoring therapy. Functional indicators are applied for assessing physical performance, predicting disease progression, and evaluating functional adaptation of the organism.

4. Interrelation of Neurohormonal and Functional Indicators

Neurohormonal and functional indicators are closely interrelated. For example, elevated cortisol under stress is accompanied by increased heart rate and blood pressure, demonstrating the integration of biochemical and physiological responses.

Measuring both types of indicators allows clinicians to:

Detect hidden dysfunctions

Predict the development of pathologies

Evaluate the effectiveness of therapeutic and rehabilitation programs

5. Practical Significance

Comparing neurohormonal and functional indicators is particularly valuable in:

Cardiology - assessing cardiac and vascular stress responses and monitoring hormonal risk factors.

Sports medicine - designing exercise and recovery programs based on hormonal and functional data.

Psychiatry and neurology - diagnosing depression or anxiety through neurotransmitter levels and physiological stress responses.

Endocrinology - correlating hormonal imbalances with organ functional activity.

6. Conclusion

Neurohormonal and functional indicators serve as complementary tools for evaluating the body's state. Neurohormonal data provide information about biochemical processes, while functional indicators reflect the actual performance of systems. Their combined analysis ensures more accurate diagnosis, therapy monitoring, and disease prevention, enabling the assessment of both hidden dysfunctions and clinical functional capacity.