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Diseases of the central and peripheral nervous system

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Abstract:
The nervous system is the “commander in chief” of our body. It is responsible for the coordinated work of all organs and systems. Nervous system problems are indicated by neck and back pain, headaches and poor sleep, memory impairment and other symptoms. Diseases of the nervous system are divided into vascular, infectious, chronically progressive, hereditary and traumatic.

Key words: myotonia , encephalopathy, neuroinfection , intracerebral hemorrhage, manual therapy, Parkinson's disease, osteopathy.

Introduction

The human nervous system is anatomically divided into two parts: central (CNS) and peripheral (PNS). This is a complex structure that permeates all the organs and tissues of our body. It is thanks to it that self-regulation of all vital functions of the body is possible, as well as the perception, storage and processing of received information. Nerve impulses allow us to sense and perceive the world around us in all its diversity. However, due to the complexity and fragility of the structure of the nervous system, injuries, damage and diseases (including genetic ones) can disrupt its coordinated functioning. Neurological diseases are pathological conditions of the brain, spinal cord, spine (including vascular disorders), as well as the peripheral nervous system. The science that deals with the diagnosis and treatment of these diseases is neurology. Diseases of the nervous system significantly worsen the general condition and quality of life of the patient. A person loses his former joy of life, his performance deteriorates.

Types of diseases of the central and peripheral nervous system depending on their source of origin:

1. Hereditary (for example: myotonia , essential tremor).
2. Traumatic (concussion, spinal cord injury).
3. Toxic (poisoning with poisons and toxins).
4. Vascular (stroke, encephalopathy).
5. Autoimmune (multiple sclerosis, myopathy).
6. Autonomic disorders (disorders of thermoregulation, sweating).
7. Neuroinfections (meningitis, polyradiculoneuritis).
8. Diseases of the elderly (dementia, parkinsonism).
9. Neuroses and asthenic conditions.
10. Brain tumors.

The most common diseases of the nervous system:

1. Acute pathologies affecting cerebral vessels. These include stroke, discirculatory encephalopathy, intracerebral hemorrhages, intracranial arterial aneurysms, etc.;
2. Consequences of traumatic brain injuries ;
3. Infectious diseases of the central nervous system: meningitis, encephalitis, brain abscess, polio and others;
4. Multiple sclerosis ;
5. Epilepsy ;
6. Age-related diseases of the nervous system - Parkinson's disease and Alzheimer's disease;
7. Osteocondritis of the spine ;
8. Genetic and inherited diseases of the nervous system. This group usually includes pathologies such as Leigh syndrome, Tourette syndrome , spinal muscular atrophy, Huntington and Batten diseases , etc.

Various disorders in the functioning of the peripheral nervous system: neuralgia, neuritis, lumbodynia and others. There are many reasons for the development of nervous system diseases in an adult. These include:

- malignant and benign neoplasms in the brain;
- uncontrolled use of certain medications;
- nerve, spinal cord, or brain injuries;
- changes in hormone levels;
- poisoning with toxic substances;
- genetic disorders;
- infectious diseases (meningitis, encephalitis);
- exposure to radiation;
- disruption of metabolic processes in the body;
- destruction of nerve cells;
- lack of B vitamins;
- deterioration of blood supply;
- pathologies of neighboring internal organs.

Lesions of the peripheral nervous system can affect either an individual nerve or an entire plexus or root. Depending on this, mono- and polyneuropathies, as well as multifocal neuropathies, are diagnosed. Diseases can be hereditary or acquired. The second group includes pathologies that originate from a number of processes, these are:

- injuries;
- poisoning;
- metabolic disease;
- infections;
- inflammation.

Symptoms of nervous system diseases :

Some signs of damage to the nervous system are characteristic of many other pathologies. These include weakness, headaches, irritability, decreased performance, dizziness and fainting. In addition, neurological diseases are accompanied by specific symptoms. These include deterioration in motor abilities, disorders of internal organs and various pain sensations.

Due to the variety of forms and types of neurological disorders, it can be difficult to identify common symptoms, but there are a number of the most common signs that may indicate the development of a disease of the nervous system. These include:

1. Sleep disorders – insomnia ;
2. Increased anxiety and irritability ;
3. Decreased performance, lethargy, drowsiness ;
4. Problems with remembering, decreased attentiveness;
5. The emergence of obsessive thoughts and phobias;
6. Nervous tics, involuntary muscle contractions;
7. Headaches, migraines, pain in limbs;
8. Frequent changes in blood pressure ;
9. Smell disorders, taste disorders, vision problems.

Neurological diseases are diverse in nature and often give a related (similar) clinical picture to other diseases. There are lesions of the central and peripheral nervous systems. The most common diseases of the central nervous system include cerebrovascular diseases with neurological manifestations, demyelinating diseases (multiple sclerosis), and degenerative diseases (Parkinson's disease). Damage to the peripheral nervous system can occur against the background of infectious diseases, allergic and autoimmune processes, vertebrogenic pathology (spinal disease), endocrine diseases and a number of other conditions.

Pain syndrome is one of the most common manifestations of diseases of the nervous system, be it headaches or back pain.

Damage to the spine occurs in most people in one form or another, be it scoliotic changes or osteochondrosis with its complications. The most common manifestations of damage to the joints of the spine and peripheral nerves are pain in the back muscles, a feeling of numbness in the limbs, and sometimes pain along the limbs.

Symptoms of PNS lesions :

Diseases of the peripheral nervous system lead to various disorders - a decrease in sensitivity like “gloves” and “socks”, deterioration of reflexes, and muscle weakness. First of all, the signs of the disease depend on the affected area. With pathologies of the PNS, the following symptoms are noted:

- flaccid muscle paralysis, weakness, numbness;
- impaired coordination of movements;
- amyotrophy;
- speech disorders, facial asymmetry;
- pain in the arms and legs or, conversely, lack of sensation.

A diagnostic examination when visiting a neurologist includes:

conducting neurological tests;

- ❖ CT, MRI;
- ❖ duplex angioscanning of the arteries of the neck;
- ❖ rheoencephalography ;
- ❖ Doppler ultrasound;
- ❖ neurosonography (infants under 1 year);
- ❖ electroencephalography;
- ❖ electroneuromyography .

When the first signs of a nervous system disease appear, you should seek the advice of a specialist. At the initial appointment, the doctor talks with the patient about his complaints, clarifies the features of the

appearance and further development of neurological symptoms. Next, an examination will be carried out, during which special neurological tests will be performed.

Laboratory tests and instrumental diagnostics may also be prescribed to identify the cause of the disease. The following can be of great help in making a diagnosis:

- electrocardiography;
- electroencephalography;
- computed tomography;
- magnetic resonance imaging;
- neurosonography .

First of all, PNS pathologies are dealt with by a neurologist with the involvement of neurorehabilitation specialists and other specialists, depending on the course and extent of the lesion. When diagnosing, the type and nature of the manifestations of the disease are clarified - motor or sensory deficits or a combination of both. Experts use a number of techniques:

- study of the speed of propagation of excitation along the nerve and electromyography, which make it possible to determine the level and type of lesion;
- MRI for serious limb lesions;
- nerve biopsy;
- genetic studies – if a hereditary nature of the disease is suspected.

Often, a diagnostic search is accompanied by a consultation with a related specialist, for example, a cardiologist, orthopedist or ophthalmologist.

After identifying the cause of the disease of the central nervous system and the location of the pathological focus in the body, the doctor begins to choose treatment tactics. Non-drug methods and drug therapy are used to treat diseases of the nervous system.

Depending on the state of the reflexes, the strength of motor activity, the functions of the central nervous system, PNS, and the autonomic nervous system, appropriate treatment is prescribed. To eliminate the cause and restore weakening or lost functions, the following are most often used:

1) drugs that improve metabolism, blood circulation and restoration processes in nervous tissue;
2) hormonal drugs;
3) blockades;
4) certain types of physiotherapy;
5) manual therapy, osteopathy;

classic massage.

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