Hypo- and hyperkinetic movement disorders/PGS

Introduction

Hypokinetic-rigid or Parkinsonian syndrome (PS) is a movement disorder characterized by rigidity, hypokinesia, or resting tremor and postural abnormalities.

Anamnesis

Patients coming to the doctor with PS describe their symptoms differently, mostly as stiffness and impaired fine motor skills. In any case, the anamnesis should include questions about the following movement difficulties:

- pain, stiffness and clumsiness of the upper limb
- resting tremor
- loss of limb flexion
- shortening the step, shuffling, burying DK
- stability disorder and falls
- reduce font size
- loss of facial expression
- lower your voice

PS can also be accompanied by nonmotor disorders (impairment of sensory and vegetative functions, cognitive deficit, behavioral disorders, or even psychotic manifestations), we ask specifically about:

- olfactory impairment
- Constipation
- sweating
- symptoms of orthostatic hypotension (dizziness, flashes before the eyes after verticalization)
- potency disorders, urination disorders
- apathy, abulia
- anxiety and depression
- sleep (insomnia or poor quality night sleep, restless legs syndrome, behavioral disorders in REM sleep, increased daytime sleepiness)
- psychotic manifestations (visual hallucinations, delusional production) – it is necessary to objectify
- self-sufficiency, coping with everyday situations

Clinical examination

In the clinical examination, in addition to the general neurological examination, we focus on cardinal symptoms: **Tremor** in HRS is typically acrally expressed with a frequency of 4-6 Hz, resting, receding during free movement. We examine the patient at rest with his hands on his thighs, often highlighted by distraction (naming the months backwards), then in static load with elevated limbs, when moving - finger-nose and heel-knee test, in the wing position, or during a specific activity.

Rigidity is manifested by increased muscle tone throughout the range of active and passive movement. We examine by passive movement in the joints of the limbs (elbow, wrist, knee, hock). We feel muscle surges during movement, which are highlighted when moving the contralateral limb.

Hypokinesia/akinesia/bradykinesia is manifested by limitation of range/impaired initiation/slowing of movements. Hypokinetic symptoms include shuffling gait, decreased writing, lowering of voice, hypomimia and loss of synkinesis. We examine by testing the tapping of the fingers – thumbs against the index finger and repeated opening and closing of the palm, on the DK by stomping the foot. There is a slowdown in the initiation of free movement and a gradual decrease in the speed and amplitude of movement during repetitive activities.

Postural disorders include anteflective posture of the trunk and neck, limb flexion, pulses and freezing. Pulses are disorders of maintaining the center of gravity, which the patient tries to cope with gradually shortening and accelerating steps. Freezing is manifested by sudden movement blockages when walking, when it seems to stick to the floor. We examine standing, walking and pull-test (jerking a standing patient backwards).

Differential diagnosis

Recognizing HRS in fully expressed form does not cause much difficulty. In differential diagnosis at the initial stage, it may be difficult to distinguish it from **cervicobrachial syndrome** for a feeling of pain in the shoulder and HK. Already at this stage, hypokinesis and rigidity are present. HRS is sometimes confused with the **central hemiparesis** for the spotted holding of HK and one-sided manifestation. Unlike hemiparesis, however, there is no reduced force, pyramidal phenomena are not expressed irritating or extinction, and there is never an extinction disturbance of sensation. In addition, it can be mistaken for **cerebellar syndrome** for diadochokinesis disorder and postural instability. In HRS, however, movement excursions are reduced and resting tremor (in cerebellar syndrome, on the contrary, increased and intentional tremor). Also, non-specific motion retardation in **depression**

or **hypothyroidism** can be mistaken for hypokinesia, but is not accompanied by other symptoms of HRS. Difficulties can be made by distinguishing tremor in HRS, which is mainly resting and other symptoms are expressed, and **essential tremor**, which is monosymptomatic and, above all, action.

The causes of HRS can be divided into 3 groups:

- idiopathic Parkinson's disease (PN - about 70-80% of cases)
- other degenerative diseases of the nervous system (the term Parkinson's syndrome is used - PS)
- secondary parkinsonian syndrome associated with another cause of non-degenerative etiology

Differential diagnosis is primarily clinical, the following examinations can help:

CT of the brain shows vascular changes, atrophy, ventricular enlargement in normotensive hydrocephalus, tumor and calcification in Fahr syndrome

In addition, **MRI of the brain** can demonstrate discrete changes typical of degenerative PS (requires a lot of experience)

DaT Scan displays the density of presynaptic endings using a radiolabeled ligand binding to a dopamine transporter. Unilateral loss of signal in the putamen is typical for PN.

Iodobenzamide SPECT displays postsynaptic dopamine receptors.

Genetic testing: tests are available for about 70% of the most common mutations in Wilson's disease (gene sequencing will confirm or rule out any mutation with great certainty), most causes of dopa-responsive dystonia, the most common spinocerebellar ataxia and Huntington's disease. Genetic testing for Parkin and LRKK in the Czech Republic is not available.

Neuropsychology will reveal the dysexecutive syndrome typical of PS, the frustrant changes present in Wilson's disease, and help in decisions about PN therapy. We should always do at least a Mini-Mental-State-Examination (MMSE).

EMG of the sphincter reveals denervation characteristic of MSA

The orthostatic test is performed to measure the BP and pulse after 5 minutes of lying down and 1 minute after verticalization, a decrease in sTK of 30 and/or dTK of 15 torr without a reactive rise in heart rate is a symptom of dysautonomy in MSA.

Levodopa test is useful in distinguishing PN from PS. Performed after 2 days of use of Motilia 3x2 tbl administration of 250 mg of levodopa on an empty stomach – we evaluate tremor, hypokinesis and rigidity before and after administration.

Parkinson's disease

__ Parkinson's disease

Parkinson's syndrome

__ Parkinson's disease

Secondary Parkinson's syndrome

__ Parkinson's disease

Shake

__ Shake

Essential tremor

__ Tremor

Chorea

__ Chorea

Ballism

__ Ballism

Dystonia

__ Dystonia

Myoclonus

__ Myoclonus

Tics

__ Tics

Drug dyskinesia

__ Dyskinesia