DIAGNOSIS OF PSYCHOGENIC (FUNCTIONAL) GAIT DISORDERS

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ABSTRACT

Psychogenic gait is common among patients with medically unexplained neurological symptoms and provides significant challenges to healthcare providers. Clinicians may arrive at a correct diagnosis earlier if distinctive positive signs are identified and acknowledged. Psychogenic disorders of posture and gait are common and are the major manifestation among 8–10 % of patients with psychogenic movement disorders. Psychogenic movement disorders can present with varied phenomenology that may resemble organic movement disorders. The diagnosis is based on clinical evaluation with a supporting history and classic features on neurologic examination. In functional gait disorders, walking is often bizarre and does not conform to any of the usual patterns observed with neurologic gait disorders. Astasia-abasia, an inability to stand (astasia) or walk (abasia) in the absence of other neurologic abnormalities, was the term applied by investigators in the mid to late 19th century to describe certain patients with a frankly functional gait. Other descriptive terms include gaits that resemble walking on ice, walking a sticky surface, walking through water (bringing to mind excessive slowness), tightrope walking, habitual limping, and bizarre, robotic, knock-kneed, trepidant, anxious, and cautious gaits. Ancillary testing, such as imaging and neurophysiologic studies, can provide supplementary information but is not necessary for diagnosis.

Key words: *psychogenic gait, neurological examination, gait analysis, positive signs*

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ДИАГНОСТИКА ПСИХОГЕННЫХ (ФУНКЦИОНАЛЬНЫХ) РАССТРОЙСТВ ПОХОДКИ

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РЕЗЮМЕ

Психогенные нарушения походки нередко встречаются у пациентов с неврологическими симптомами, которые необъяснимы с медицинской точки зрения. Психогенные расстройства позы и походки являются основным проявлением у 8–10 % пациентов с нарушениями психогенного движения. Они создают серьёзные диагностические проблемы для медицинских работников. Однако клиницисты могут прийти к правильному диагнозу уже при первичном осмотре, если они знают и умеют выявлять «позитивные» клинические признаки, направленные одновременно на исключение органической патологии и подтверждение психогенного (функционального) характера неврологических расстройств. При функциональных нарушениях походки ходьба часто бывает странной и не соответствует ни одному из обычных образцов, наблюдаемых при нарушениях неврологической походки. Они могут включать: астазию-абазию (неспособность стоять или ходить) при отсутствии неврологической патологии; нерентабельную походку на полусогнутых ногах; моноплегическую походку с подтаскиванием ноги, нередко с эквиноварусной установкой стопы; или напоминать «прогулку по льду», с небольшими осторожными шагами и фиксированной в голеностопном суставе лодыжкой. Вспомогательные обследования, такие как нейровизуализация и нейрофизиологические исследования, могут предоставлять дополнительную информацию, но не являются необходимыми для диагностики.

Ключевые слова: *психогенная походка, анализ походки, неврологический экзамен, позитивные признаки*

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Psychogenic (functional) movement disorders are quite common phenomena in clinical practice. 2–20 % of patients in specialized movement disorders clinics are diagnosed with functional movement disorders [1, 2]; 40 % of these patients have gait disorders without structural organic damage [3, 4]. In addition, among 30–60 % of patients who turn to a neurologist with gait disorders no organic pathology can be identified [5–8]. Psychogenic (functional) gait disorders (also called conversion disorders) are the loss of the ability to walk in the absence of neurological pathology. They are included in a wide range of functional neurological disorders (FNDs) and, in particular, in the category of movement disorders. In the foreign medical literature, when describing functional gait disorders, terms such as "psychogenic gait disorders" and "functional gait disorders" are equally used [9–11]; although in recent years the emphasis has been on the term "functional" – as less stigmatizing and offensive [12]. In this article we will use the term "psychogenic gait disorders" (PGDs).

PGDs can be isolated (e. g., astasia-abasia) or be part of mixed functional movement disorders: for example, in 6–8.5 % of patients, functional disorders of posture and gait are the main manifestation, and in 40 % – in combination with other functional movement disorders [3, 13–16]. Psychogenic astasia-abasia (or psychogenic dysbasia) is manifested by a disorder of movement coordination, which is characterized by the inability to stand or walk, despite the normal ability to move your legs in a sitting or lying position. Externally, the gait of such patients, especially in the doctor's office, has elements of drama and acrobatics (acrobatic gait). When walking, they sway in different directions, make sharp zigzag steps, tilt their torso forward (camptocormia) or lean back, cross their legs in a "hair-braiding" style. Some move on straightened and slightly separated legs (four-point gait), stumble over surrounding objects (which are usually soft), most often without falling; thus, on the contrary, demonstrating good motor and balance control. Sometimes patients with PGDs can actively try to fall when the doctor and/or family members are nearby; patients with organic diseases usually try to support themselves by looking for support nearby, and not crossing the room or corridor – as patients with PGDs do. Patients with psychogenic gait can walk normally if they think that no one is watching them. PGDs can be part of complex functional movement disorders, for example, with functional weakness or paresis in the form of hemiparesis, lower mono- or paraparesis; functional (psychogenic) parkinsonism or functional (psychogenic) dystonia. Therefore, some of them outwardly resemble hemiparetic, paraparetic and monoparetic gaits, others – dystonic or parkinsonian gaits. Gait disorders are often included in the structure of somatoform pain syndrome by the type of lumboishialgia with maladaptive pain behavior.

GENERAL APPROACHES TO THE DIAGNOSIS OF FUNCTIONAL NEUROLOGICAL DISORDERS

In the past, diagnosis of psychogenic or functional gait disorders was made after all potential organic causes were excluded. At the same time, the identification of "positive" symptoms, which make it possible to detect inconsistency of clinical neurological data with known diseases, is considered to be the most important in the diagnosis of functional neurological disorders. Modern diagnostic criteria for functional neurological disorders and, in particular, psychogenic gait disorders are based on DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, American Psychiatric Association, fifth edition, 2013) and ICD-10 (International Classification of Diseases. 10th Revision, 1992). In DSM-5, when making the diagnosis of "conversion disorder" (functional neurological disorder), the main emphasis was placed on clinical data, and less attention was given to concomitant psychological factors, as required in previous versions. Thus, neurological tests, according to the DSM-5, are an important step in reaching the diagnosis of a functional neurological disorder. They exclude organic disease and identify "positive" symptoms indicating a functional (conversion) disorder, which allows you to prevent unnecessary, and sometimes potentially dangerous, invasive studies that can support and consolidate functional neurological symptoms.

In ICD-10, conversion (dissociative) neurological abnormal movement disorders or weakness are included in section F44 (Dissociative disorders). Characteristic of this group of disorders are paresis and paralysis, astasia-abasia, etc. symptoms whose clinical manifestations do not correspond to the symptoms of known neurological disorders. ICD-11 (International Classification of Diseases for Mortality and Morbidity Statistics. 11th revision, 2020) defines functional gait disorders as follows: "dissociative neurological symptom disorder, with gait disturbance is characterized by symptoms involving the individual's ability or manner of walking, including ataxia and the inability to stand unaided, that are not consistent with a recognized disease of the nervous system, other mental, behavioral or neurodevelopmental disorder, or other medical condition and do not occur exclusively during another dissociative disorder" (code: 6B60.7 Dissociative neurological symptom disorder, with gait disorder). Thus, both DSM-5 and ICD-10 and ICD-11 point out an important feature – an inconsistency of psychogenic (functional) gait with known neurological or somatic disorders.

ANAMNESTIC AND CLINICAL FEATURES SUGGESTING THE PSYCHOGENIC (FUNCTIONAL) MOVEMENT DISORDERS

A. Anamnesis:

1. Symptoms most often occur acutely.
2. The course of the disease is stationary, without signs of progression.
3. Spontaneous remission or rapid regression of symptoms.
4. Concomitant signs of anxiety and depression are possible.
5. Multiple somatic complaints.

In some situations, a detailed psychosocial history allows you to identify the immediate cause of functional neurological disorders (FNDs). For example, it can be a job loss, divorce, sexual abuse, an insult or resentment. The disease can sometimes manifest itself after a minor physical injury, while abnormal movement disorders and pain sensations do not correspond to the degree of the injury [17]. Patients with conversion neurological disorders are often diagnosed with other unexplained psychosomatic manifestations, such as fibromyalgia, irritable bowel syndrome, atypical chest pain [18–20].

B. Clinical data:

1. Symptoms appear or increase when attention is drawn to them and decrease or disappear when the patient is distracted.

2. Functional neurological symptoms that are absent in the anamnesis may appear during the examination.

3. Such features of movements as amplitude, frequency, prevalence, are inconsistent and uncharacteristic of organic pathology features or signs.

Neurological examination allows to identify inconsistency of the obtained examination data with known symptoms or diseases; at the same time, it is important to distract the patient's attention during the examination. For example, a patient who cannot move their leg when asked to, begins to move it while putting on shoes or trousers after an examination. During neurological examination of patients with conversion neurological disorders, there are no objective signs of organic damage to the nervous system, for example: there are no pathological symptoms (Babinski sign), reflexive sphere without abnormalities, no muscle atrophy in the acute period. But at the same time, it should be taken into account that among some patients with FNDs, false neurological signs may be detected, such as hyperreflexia, Babinski pseudosymptom, pseudoataxia, etc. In functional hemiparesis, involvement of all anatomical structures on the "affected" half of the body may be noted (hearing loss, vision, hemiparesis and hemihypesthesia involving the face). In functional weakness in the arm or leg, the entire limb is involved, not individual muscle groups, and this may be accompanied by simultaneous muscle hypotension and hyperreflexia. During examination, non-anatomical sensitivity disorders may be detected (hypesthesia or anesthesia with a border strictly along the midline of the upper half of the trunk, or there is an "amputation character" of sensitive disorders involving the entire arm or leg). Patients with functional hemihypesthesia may claim that they do not feel vibration on one half of the sternum, although it is well transmitted through the bones.

C. Response to therapy. Lack of response to specific treatment aimed at a possible or suspected neurological disease, and a positive rapid therapeutic effect after psychotherapy or placebo.

D. Diseases associated with FND may include panic disorders, generalized anxiety disorders, post-traumatic stress disorders, dissociative disorders, social phobias or specific obsessive-compulsive disorders and personality disorders [5, 21, 22].

S. Fahn and P.J. Williams (1988) identified the following criteria for establishing FND: sudden or acute onset; spontaneous remissions or recurrence; inconsistency and variability of neurological symptoms during examination or dynamic observation that do not correspond to known neurological diseases; increased emphasis on painful manifestations; reduction or disappearance of certain functional symptoms when distraction or when using psychotherapy, suggestion or placebo; functional movement weakness or sensory (non-anatomical) disorders; pain sensations unexplained from the standpoint of modern medicine; excessive fear, startle response to an unexpected action; unnatural, bizarre movements; multiple somatization [23]. It should be noted that initially the authors proposed these criteria for the diagnosis of psychogenic dystonia; subsequently these diagnostic criteria have been extended to other FNDs.

DIAGNOSIS OF PSYCHOGENIC (FUNCTIONAL) GAIT DISORDERS

It should be noted that no gait pattern is pathognomonic for a functional gait disorder. For example, a bizarre gait can be observed in organic dystonia or chorea. In addition, functional and organic gait disorders can coexist in the same patient. Therefore, the diagnosis is often quite difficult, especially for an untrained neurologist. However, the diagnostic process should not be based on the exclusion of organic gait disorders, but on the search for positive clinical signs of functional gait disorders, namely: variability or incompatibility (i. e., variations in the clinical picture that cannot be reconciled with known organic pathology) and inconsistency (a combination of symptoms and signs that is not observed in organic lesions) [2]. For example, there is a sudden onset or rapid progression of gait disorders in the absence of injury or structural damage to the nervous or musculo-skeletal systems. Examples of inconsistencies in neurological examination may include the following: "scissor gait" in the absence of damage to the corticospinal pathway; antalgic gait in the absence of pain; bending of the knee (or knees) when walking with normal strength of the quadriceps muscle; significant improvement in gait with distraction.

DIAGNOSIS AND SUBTYPES OF PSYCHOGENIC GAIT DISORDERS

T. Lempert et al. (1991) distinguish six categories and six features of psychogenic gait [9]:

1) momentary fluctuations of stance and gait, often in response to a short suggestion;

2) excessive slowness or hesitation of locomotion incompatible with neurological disease;

3) "psychogenic Romberg test" manifested by a build-up of sway amplitude after a short delay and a decrease by distraction;

4) uneconomic postures with high wastage of muscular energy;

5) the "walking on ice" gait pattern, which is characterized by small cautious steps with fixed ankle joints;

6) sudden loss of stability and buckling of the knees, usually without falls.

Six suggestive features: 1) pseudoataxia: instability of posture and gait; 2) flailing of the arms; 3) dragging of the leg; 4) continuous flexion/extension of the toes; 5) bizarre tremor of the hands/legs/trunk/head; 6) sudden sidesteps.

PGDs can be of a diverse nature. Several characteristic subtypes of gait can be distinguished.

Leg-dragging gait (or monoplegic gait, with weakness, dragging and limping of one leg, while the other leg moves normally or almost normally) [16, 24, 25]. The patient drags a functionally weak leg behind the trunk, often with internal or external hip rotation and with inversion/eversion in the ankle. It is characteristic that the weak leg is dragged behind the patient from the hip and the front part of the foot is in contact with the floor ("as if it is magnetized to the ground"). Such patients use both hands to pull their leg up on the bed. Often there is a sudden weakness of the "affected" leg with bending of the knee joint, usually without falling. Positive Hoover test and other tests help to determine the functional weakness of the leg.

"Walking on ice" gait. This gait pattern is characterized by abnormal, excessively slow movement of both legs. The pattern of such a gait resembles walking on a slippery surface: cautious, slow, with reduced stride length and height, fixed knees and ankles; usually caused by simultaneous contraction of the agonist and antagonist muscles and outwardly resembling the gait during Parkinson's disease. Slow movements of the whole body are often noted, with a long time spent undressing and putting on clothes. In other situations, the hands may be pulled to the sides, which resembles walking on a tightrope. Gait can be improved by asking the patient to walk backwards, run or walk up and down stairs.

Truncal ataxia/instability. When walking, the patient sways from side to side, while often taking small side steps to avoid falling. Flailing of the arms. The flailing is observed only in the upper half of the body, whereas the legs move to correct the imbalance when the body vector is moved away from the body weight line; it seems that the person moves his or her legs in order not to fall and restore balance. Techniques and tasks aimed at distracting the patient improve postural instability, for example: guess the numbers written with a finger on their skin, solve complex arithmetic problems, count the months of the year in reverse order, etc. It is important to note that the balance of such patients during an objective examination is much better than they claim.

POSITIVE CLINICAL SIGNS THAT ALLOW TO IDENTIFY FUNCTIONAL WEAKNESS OF THE LOWER EXTREMITIES THAT AFFECT THE GAIT FUNCTION

Hoover test. The Hoover test has been used since 1908 to diagnose conversion paralysis during unilateral weakness of the lower limb. It was first described by the American physician Charles Franklin Hoover (1865–1927). This test has moderate sensitivity (63 %) and high specificity (100 %) [26–29]. This test is based on the phenomenon of coordination synkinesias. So, if a person lying on his or her on an examination table back lifts up one leg, then the heel of the other leg involuntarily exerts pressure on the table. It is difficult to use this test for bilateral weakness of the legs. The procedure: the doctor stands at the foot end of the bed, puts their hands under the patient's heels and asks him/her alternately to press his/her legs to the bed with maximum force. If the pressure of the patient's healthy leg on the doctor's hand is insignificant, then it can already be assumed that he or she is making little effort. Then the doctor asks the patient to lift the weak leg. In organic paresis, the doctor will feel an increase in the pressure of the healthy leg on the hand, i. e., the patient will try to support the paretic limb. Lifting a weak leg in functional paresis will not be accompanied by an increase in the pressure of the heel of the healthy leg on the doctor's arm (positive Hoover test). As an alternative, the patient is offered to lift a healthy leg up, while the doctor offer resistance to it, in which case the pressure of the heel of a functionally weak leg on the hand will increase and return to normal. This will not be observed with organic paresis, i. e. the paretic limb will exert weak pressure.

Sonoo abductor test. This test was developed by the Japanese neurologist M. Sonoo (2004) to detect unilateral inorganic paresis of the lower limb [30]. It is based, like the Hoover test, on the phenomenon of coordinating oppositional synkinesia and distraction. The procedure: the doctor stands at the foot end of the bed or the examination table with the patient lying on it and asks him/her to spread his/her legs apart as much as possible. Then the doctor puts his hands on the area of the lateral ankles of the patient's legs and, applying equal force, begins to shift them to the center. A weak leg, both in functional weakness and organic paresis, is detected immediately: it begins to move towards the healthy leg. Then the doctor moves the patient's healthy leg along the middle line and asks them to take turns moving their legs to the sides; at the same time, the patient's attention should be focused on the leg that is in motion. In psychogenic (functional) paresis, when the patient moves the healthy leg aside, focusing attention on it, the strength in the weak leg increases significantly and it is in a station ary state with equal external pressure from the doctor's hands. However, when the functionally weak leg is taken aside, the healthy leg also becomes "weakened", and it will shift towards the "pseudo-paralyzed" leg. In organic paresis, there will

be a different picture: when the patient takes the healthy leg to the side, it remains stationary (that is, it offers resistance), and the affected leg begins to move in its direction; if the patient move the paralyzed leg to the side, then the healthy leg continues to be in the initial (or stationary) state due to oppositional synergism. This test can also be performed in a sitting position on a chair or an examination table. In functional paresis, the strength in the hip will return to normal with the contralateral withdrawal of the healthy leg against the external resistance exerted by the doctor.

"Spinal Injuries Center" test. This test was described by I. Yugue et al. (2004) to assess psychogenic (conversion) paresis of the lower extremities [31]. The procedure and the evaluation method: the patient lies on their back, and the doctor passively raises their knees to a bent position, while their feet rest on the bed. Then the doctor removes his/her hands from their knees, and if the patient can keep their knees bent, the test is considered positive (that is, there are indications of psychogenic paresis). In organic paresis, the leg is not held in a bent position, and it will descend, bending the knee outward (in this case, the test is considered negative).

Muscle tone examination. A patient with psychogenic paresis may offer resistance to the doctor, which feels like an increase in muscle tone of the limb; but then suddenly there is no muscle resistance at all. However, the patient may resume resisting in the future (this sign is the phenomenon of "stepwise" weakness, "giveaway" or "compliant" weakness).

Lower Barre test. The patient is offered to lie on their stomach with their knees bent at right angles and hold them in this position. In organic paresis, the leg will quickly fall down with a possible oscillation of the leg. The leg of a patient with psychogenic paresis also quickly unbends, but without contraction of the hamstring muscles.

Chair test. This test helps to diagnose patients with functional gait disorder, demonstrating a significant discrepancy when walking in an upright position and when "walking" on a chair [32]. The procedure: the patient is first asked to "walk" back and forth to the examiner, while sitting in a revolving chair with wheels, at a distance of 6–9 meters. Then the patient is asked to walk the same distance without a chair. Patients with functional gait disorders will find it difficult to walk, but with the help of a revolving chair with wheels, they can usually move without problems. Patients with organic gait disorders have difficulty performing both tasks.

Huffing and Puffing sign. Patients with psychogenic gait disorders demonstrate excessive efforts when undressing, getting up from a chair, standing, and especially when walking, which are accompanied by frequent sighs after holding their breath, pained facial expressions, grunting, crying, extreme slowness, wiggling of the toes, sudden bending of the knees [33, 34].

Wartenberg test (test of the "game" of foot tendons). Normally, when a healthy person stands on one leg, the foot dorsiflexion muscles reflexively strain; in organic paresis, such tension of the tendons is weakly expressed or absent. Such alternating changes of muscle tendons in order to maintain balance are referred to as the "game" of tendons. The "game" of the tendons of the foot dorsiflexion muscles is detected among patients with psychogenic paresis of the foot (i. e., similar to a healthy person) when standing on one leg or a sharp push to the side.

For the purpose of differential diagnosis of PGD from organic gait disorders, other complicated tests are also used, for example, tandem walking; flank gait test; walking on heels, toes, with closed eyes, with rapid body turns; the Romberg test; running forward or backward. Gait assessment in a small doctor's office does not allow to detect all the relevant characteristics, so patients should also walk in a wide hallway or corridor.

The "psychogenic" version of the Romberg test: 1) a sharp deviation of the patient's body to or from the medical worker, but without falling to the floor; 2) excessive rocking of the body of a large amplitude after a delay of several seconds; 3) a significant improvement in standing in the Romberg pose with closed eyes when the patient is distracted (for example, with writing numbers on their back or solving arithmetic problems).

Flank gait test. The patient is offered to move sideways to the right and to the left. In organic hemiparesis, the patient moves better towards hemiparesis than in the opposite direction; and in psychogenic (functional) hemiparesis, walking sideways is impossible or significantly difficult, both in one direction and the other.

When testing for postural instability of patients with PG, uncharacteristic reactions are noted, unlike Parkinson's disease: for example, when a patient standing with his/her back to the doctor is pulled back by his/her shoulders (the retropulsion test), he/she takes sharp steps backwards, while flailing his/her arms, but does not fall [35] and sometimes even a simple pat on the shoulder can cause an abnormal anticipatory postural reaction [36].

Functional neurological disorders often occur acutely, mimic a stroke or organic lesions of the spinal cord (including with gait function disorder). Therefore, knowledge and mastery of the skills of "point-of-care" examination methods based on positive diagnostics allows doctors, especially those providing urgent or emergency medical care, to correctly diagnose, avoiding excessive economic costs for examinations and treatment [37–40]. It should be noted that none of the tests can be interpreted in isolation, but must be considered in the context of a complete clinical picture.

CASE HISTORY

Female patient I., 38 years old, after a number of psychotraumatic situations (a conflict at work, exacerbation

of her child's chronic disease) had a sudden speech disturbance, speech suddenly broke down, non-systemic dizziness, weakness in her left arm and leg. She was taken by ambulance to the neurological department of the hospital. After inpatient treatment she was discharged with the following diagnosis: "Ischemic stroke in the right middle cerebral artery. Arterial hypertension of 3rd degree, risk 4. Mild left-sided hemiparesis, hemihypesthesia. Transient dysarthria. Moderate vestibular-coordination disorders. Incapacity to work certification for 160 days, with different diagnoses: "vertebrogenic cervicobrachialgia, thoracalgia", fibromyalgia syndrome", "arterial hypertension", "polyosteoarthrosis". During the same period, she had several hospital admissions with different diagnoses. Due to long-term temporary incapacity for work, she was sent for a medical and social assessment (MSA).

Complaints and objective status during examination at the MSA Bureau. She entered the doctor's office on her own, in simple shoes, with a cane, leaning more on her right foot, walking extremely slowly, dragging her left foot in an equinovarus position. She makes numerous complaints: for almost constant headaches, pains throughout the body, a feeling of "goosebumps" on the body, lack of air, even at rest, limb weakness, more on the left side, periodic choking when eating due to the sensation of a foreign body in the throat ("like a lump stuck in the throat"), hoarse voice during agitation, fleeting deterioration of visual and auditory sensations; retrosternal pain, cardiac pain with irradiation to the left arm, scapula, occurring with any movement of the body, "I'm suffocating all the time, my heart hurts." Her husband helps her to dress and undress ("dizzy when tilting"). According to her, her husband and children do all the housework ("I can't even get dressed on my own"). Cranial nerves: pupils equal, pupillary responses are preserved, no oculomotor disorders, painless trigeminal points, well-functioning masticatory and mimic muscles, hearing is preserved, no nystagmus, soft palate arches mobile when phonating, tongue sticking out along the midline. Reflexes of oral automatism are negative. There is a periodic head tremor, which disappears when attention is diverted. The muscle tone in the right extremities has not changed, and the muscle tone in the left arm and leg changes according to the type of the phenomenon of "compliant" or "stepwise" weakness (i. e., periodically the patient resists the doctor when he/she examines the muscle tone, then suddenly ceases to exert muscle resistance). In the upper Barre test, the hands are at the same level, without pronation (i. e., there is no pyramidal weakness of any hand), although the left hand is clenched more loosely. Tendon reflexes from the hands of average vivacity, without significant difference. Knee and Achilles reflexes are triggered, with no convincing difference. Pathological hand and foot reflexes are not detected. Left-sided hemihypesthesia is determined strictly along the middle line. She performs coordination tests accurately, sways slightly in the Romberg pose, but does not change the pose. Positive Hoover test. No extrapyramidal disorders. No pelvic symptoms. In palpation the rectus muscles of the back are soft. No symptoms of tension of the nerve trunks.

Psychologist. The examination procedure is treated formally. There is no interest in the results of the examination. She learns the instructions to the tasks correctly, retains them in memory. She looks sad. She speaks in a low voice. The mood is low. Work pace is slightly low. Attention is draining. Performance is low. Mnestic functions are slightly low. Mnemogram 5-6-6-8. The efficiency of memorization is impaired. Delayed recall of 6 words. Arithmetic operations are performed at a moderate pace, without errors. When performing tasks aimed at the study of mental processes, an episodic decrease in the level of generalization is detected. From the side of thinking dynamics – slower pace. Graphic characteristics without signs of an organic nature. According to the test of Szondi, Luscher and the Beck Depression Inventory, it was revealed: the mood is low (17 points on the depression scale, which corresponds to moderate depression), increased sensitivity to external stimuli, decreased performance, difficulties in effective communication, the desire to flaunt oneself, increased anxiety, hypochondria. Personality has demonstrative traits. The internal model of the disease is inadequate. The rehabilitation potential of the disease is satisfactory.

Additional examination data. Ultrasound dopplerography (USDG) of the cervical vessels did not detect stenotic and occlusive lesions of arterial vessels. No focal pathology was detected during magnetic resonance imaging (MRI) of the brain. X-ray data of knee joints, hands, feet, ankle joints without abnormalities. ECG: sinus tachycardia. HR 100 bpm. Changes in the left ventricular myocardium with moderate diffuse abnormalities of repolarization processes. General analysis of blood and urine, biochemical blood tests – no abnormalities. Oculist examination – myopia of both eyes. Consultation with an endocrinologist – exogenous constitutive obesity of the 3rd degree.

The author's comment. Acute development of limb weakness and gait disorders can occur with stroke and functional (conversion) neurological disorder, which presents certain diagnostic difficulties. However, a thorough neurological examination with diagnostic clinical tests did not detect pyramidal symptoms that are observed in stroke. Thus, the patient has no pathological hand and foot signs (upper Rossolimo sign, Babinski sign), upper and lower Barre tests did not detect pyramidal weakness. Functional weakness in the leg was confirmed by the Hoover test. The muscle tone in the left extremities is changed according to the type of "compliant" or "stepwise" weakness. The gait is monoplegic – with weakness and dragging of the left leg behind the trunk with an equinovarus position of the foot. In a hemiparetic gait of organic origin, the paretic leg is straightened, and the foot, in the position of plantar flexion and supination, makes a semicircular movement

(circumduction) through the side. The sensitivity disorder is of a non-anatomical nature ("splitting" of sensitivity strictly along the middle line). Neuroimaging (brain MRI, USDG of the cervical vessels) and laboratory parameters (blood analysis, biochemical blood analysis) without abnormalities. It should also be remembered that the detection of any changes on the MRI may be of a residual nature, unrelated to the current disease. Therefore, paraclinical data must be compared with the clinical picture of the disease. Numerous psychosomatic complaints, comorbidity with mental disorders (anxiety, depression), secondary advantage (manipulation of family members) point in favor of FND. In addition, acute limb weakness, speech disorder (stuttering) occurred after traumatic situations. However, currently, according to the DSM-5, psychological stresses are not obligate when making a diagnosis of FND. The detection of "positive" physical signs and the performance of diagnostic clinical tests are crucial for this diagnosis.

Thus, it can be concluded that the patient has a "Functional (conversion) neurological disorder with movement and sensory disorders, gait disorders, chronic course."

It is important to note that about 8 % of cases of acute stroke mimics can be caused by functional neurological disorders [41, 42]. Neuroimaging (MRI, CT) is supported in these cases, but it does not confirm the diagnosis of a functional neurological disorder and does not exclude acute cerebral infarction with absolute certainty [43]. Therefore, clinical assessment at the point of care remains the best available method for distinguishing acute stroke and functional mimics of stroke.

CONCLUSION

Diagnosis of functional neurological disorders, including psychogenic gait disorders, should include a thorough clinical examination to identify positive signs. A "positive" diagnosis makes it possible to make a correct diagnosis at an early stage of the disease, and neuroimaging and neurophysiological studies can provide additional information.

Conflict of interest

The authors of this article declare the absence of a conflict of interest.

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