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Rosytska Oleksandra Anatoliivna PhD, assistant Department of Family Medicine of the Faculty of Postgraduate Education and Propedeutics of Internal Medicine, Dnipro State Medical University, Dnipro, tel.: (050) 60-234-32, https://orcid.org/0000-0002-5424-5252

NEUROCOGNITIVE DISORDER IN PRIMALY CARE. CLINICAL CASES

Abstract. The problem of patients with dementia is relevant both in medical practices around the world and in Ukraine. Dementia is the seventh leading cause of death among all diseases and one of the main causes of disability and dependence among older people worldwide [2]. The Public Health Centre of the Ministry of Health of Ukraine (https://phc.org.ua/news/vchasne-likuvannya-demencii-upovilnyue-ii-rozvitok-de-bezoplatno-otrimati-liki) pays special social attention to the problem of mental health of Ukrainians. This is supported by the implemented All-Ukrainian Mental Health Programme "How are you?", initiated by First Lady Olena Zelenska, and the ongoing implementation of the WHO global programme mhGAP (Mental Health Gap Action Programme). Both of these programmes are aimed at increasing access to mental health services by engaging primary healthcare workers into providing services to patients with mental disorders (www.umj.com.ua/uk/novyna-242726-programa-mhgap-shho-vona-daye-likaryam-pervinki).

According to the latest Clinical Guidelines for Medical Care of Dementia (2023), Clinical Guidelines for Medical Respite Care: Cognition (2023), and Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR, 2022), neurocognitive disorder is a clinical syndrome. It is defined by a progressive decline in one or more components of cognitive function (memory, language, problem-solving and other thinking abilities) relative to the premorbid functional level of a person, and is quite serious to the point of interfering with daily life. The DSM-5-TR (2022) allows a clinician to diagnose neurocognitive disorders ranging from mild to severe, where severe neurocognitive disorder (NCD) is mostly synonymous with dementia [2, 3, 5, 6].

Old age is considered the most common risk factor when it comes to developing a particular form of neurocognitive disorder, but among the predictors of NCD, the following are of particular importance: the state of the cardiovascular and endocrine systems, physical activity, diet, and level of education. It should be noted that conditions such as a record of traumatic brain injury, even in mild form, is associated with a twofold increase of the risk of developing cognitive disorder, also at a younger age. A number of studies have shown the impact of individual factors (poor sleep

quality, excessive alcohol consumption, depression, hearing impairment, etc.) that increase the risk of developing dementia. However, this correlation is complex and is related to other diseases and social determinants of health [2].

Thus, dementia is characterized by a deterioration of cognitive functions, has a progressive or permanent course, and eventually affects the quality of life of the patients and their relatives. There are many different causes that induce formation of cognitive disorders and dementia among patients. It is estimated that in about 23% of cases, these changes are reversible, which meets the definition of reversible neurocognitive disorders [1, 6]. The clinical cases presented in the article emphasize the importance of correct and timely diagnosis of neurocognitive disorder, which optimizes the management algorithm and prognosis regarding the patient's recovery.

Keywords: clinical case, cognitive impairment, neurocognitive disorder, dementia, cognition, diagnosis, hypoglycaemia, syphilis / lues, family medicine.

Росицька Олександра Анатоліївна к.мед.н., асистент кафедри сімейної медицини ФПО та пропедевтики внутрішньої медицини, Дніпровський державний медичний університет, м. Дніпро, тел. (050)602-34-32, https://orcid.org/0000-0002-5424-5252

НЕЙРОКОГНІТИВНИЙ РОЗЛАД В АМБУЛАТОРНІЙ ПРАКТИЦІ ЛІКАРЯ. КЛІНІЧНІ ВИПАДКИ

Анотація. Проблема пацієнтів з нейрокогнітивним розладом є актуальною в медичних практиках світу та України. Деменція, як одна з форм цього розладу є сьомою основною причиною смерті серед усіх захворювань і однією з головних причин інвалідності та побутової соціальної залежності серед людей похилого віку в усьому світі. [2]. Центр громадського здоров'я МОЗ України (https://phc.org.ua/news/vchasne-likuvannya-demencii-upovilnyue-ii-rozvitok-de-bezoplatno-otrimati-liki) надає особливого соціального значення проблемі психічного здоров'я українців. Розроблена і впроваджена Всеукраїнська програма з ментального здоров'я «Ти як?», що була ініційована першою леді Оленою Зеленською, та імплементація глобальної програми ВООЗ mhGAP (Mental Health Gap Action Programme), що спрямована на підвищення доступу до послуг з охорони психічного здоров'я шляхом залучення медпрацівників первинної ланки медичної допомоги до надання послуг пацієнтам із психічними розладами (www.umj.com.ua/uk/novyna-242726-programa-mhgap-shho-vona-daye-likaryam-pervinki).

У відповідності до останньої клінічної настанови «медична допомога при деменції» (2023р.), клінічної настанови «медична невідкладна допомога: когніція» (Clinical Guidelines for Medical Respite Care: Cognition, 2023р.), діагностичного та статистичного посібника з психічних розладів (DSM-5-TR, 2022 р.) нейрокогнітивний розлад – це клінічний синдром. Він визначається

прогресуючим зниженням однієї чи кількох складових когнітивних функцій (пам'яті, мови, здатності вирішувати проблеми та інших здібностей до мислення) відносно преморбідного функціонального рівня людини, є досить серйозним і заважає повсякденному життю. Наведені настанови та рекомендації DSM-5-TR дозволяють клініцисту проводити діагностику порушень когніцій, нейрокогнітивних розладів від легких до виражених (виражений нейрокогнітивний розлад (НКР) здебільшого є синонімом деменції) та проводити відповідний алгоритм ведення пацієнтів з порушенням когніцій [2, 3, 5, 6].

Найбільш частим фактором ризику розвитку тієї чи іншої форми НКР вважають похилий вік, але серед предиктів НКР особливе значення мають ті, що модифікуються: стан серцево-судинної і ендокринної систем, фізична активність, дієта, рівень освіти. Слід зазначити, що такі стани, як черепно-мозкова травма в анамнезі, навіть у легкій формі, пов'язані з дворазовим збільшенням ризику виникнення НКР, в тому числі у більш молодому віці. Частка досліджень доводить вплив особистісних факторів (погана якість сну, надмірне вживання алкоголю, депресія, порушення слуху та інші), щодо підвищення ризику порушення когнітивних функцій. Однак цей взаємозв'язок є складним і пов'язаний з іншими супутніми захворюваннями та соціальними детермінантами здоров'я [2].

Нейрокогнітивний розлад має прогресуючий або постійний перебіг, з часом впливає на якість соціально-економічних складових життя пацієнта та його родичів. Існує велика кількість різноманітних причин, що індукують формування та різноманітність проявів когнітивних порушень у пацієнтів. За різними оцінками до 23% випадків ці зміни є оберненими, що відповідає дефініції зворотних нейрокогнітивних розладів [1, 6]. Клінічні випадки, що подані в статті, підкреслюють значущість правильної та своєчасної діагностики НКР що оптимізує алгоритм ведення та прогноз одужання пацієнта.

Ключові слова: клінічний випадок, когнітивні порушення, нейрокогнітивний розлад, деменція, когніція, діагностика, гіпоглікемія, сифіліс/ lues, сімейна медицина.

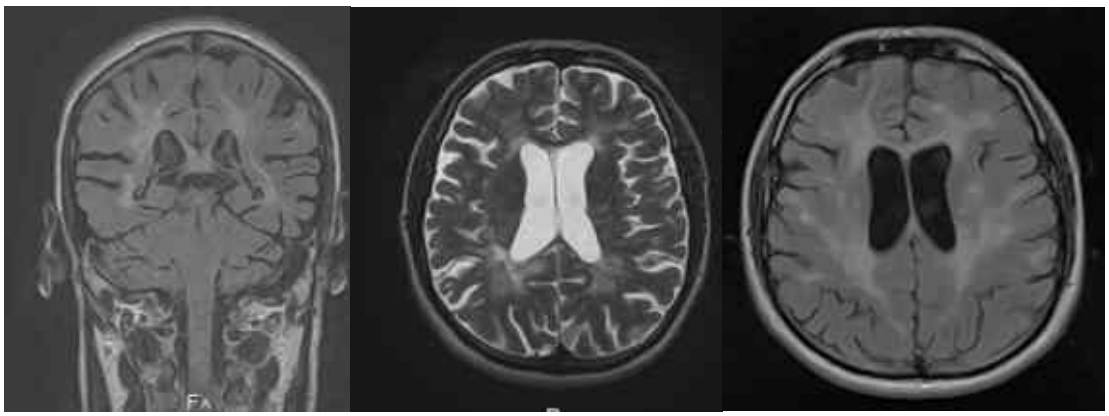
Analysis of the latest research and publications. Diagnostic approaches to neurocognitive disorders are constantly being updated based on new data obtained in modern studies. Recommendations, standards for the diagnosis and management of patients with neurocognitive disorders/dementia are currently being developed in different countries (USA, UK, Canada, etc.) with the support of certain foundations, national councils, health and social care committees. In Ukraine, the Ministry of Health of Ukraine's Order No. 736 of 19.07.2016 ‘Unified Clinical Protocol for Primary, Secondary (Specialized), Tertiary (Highly Specialized) and Palliative Care. Dementia’ [1]. The 2019 update of the Canadian Best Practice Guidelines for Post-Stroke Emotional and Cognitive Impairment and Fatigue (CSBPR) is dedicated to vascular cognitive disorders [8]. In 2022, there was an update to the DSM-5-TR (Diagnostic and

Statistical Manual of Mental Disorders, fifth edition) of the American Psychiatric Association [6]. The DSM-5-TR Appendix on Neurocognitive Disorders has updated excerpts for severe and mild neurocognitive disorders in the DSM-5-TR. These modifications reflect significant changes within the ICD-10 codes. In 2023, the Clinical Guidelines for Medical Respite Care: Dementia, 2023 [2] were published for common forms of irreversible dementia, including Alzheimer's disease, frontotemporal dementia, dementia of the Lewy body, vascular dementia, and mixed dementia. Also in 2023, there was a publication of the Clinical Guidelines for Medical Respite Care: Cognition (2023) [3]. Screening, diagnosis, and treatment of vascular cognitive impairments are provided in the 2023 'Cognitive and psychological disorders after stroke' standard of medical care [4].

The aim of the study is to improve the knowledge of primary care doctors based on the analysis of clinical cases of patients with neurocognitive disorders.

Clinical case № 1.

Patient E., 44 years old, has been suffering from herpetic ganglionitis since the age of 35, when a rash was diagnosed on the skin of the left palm. 6 months after the onset of the disease, a gradual impairment of memory, writing, and arithmetic began, MMSE score – 23 points; he underwent a 6-month primary care treatment of discirculatory encephalopathy without CNS neuroimaging. One year after the onset of the disease, when the patient was referred to another medical institution, he underwent a clinical examination and had an MRI of the brain which revealed focal changes. To differentiate the diagnosis of "herpetic encephalitis", the patient was referred for treatment to the neurological department, where a positive RW blood test was detected and the appropriate specialist diagnosed neurosyphilis. Treatment for tertiary syphilis was performed for three months with positive dynamics regarding cognitive disorders – MMSE score – 26 points.



Over 1.5 years after the start of the disease, after treatment with neurolysis, along with cognitive impairment, the patient had the following syndromes: bilateral sensorineural hearing loss (since 15 years after mumps); moderate coordinator-cerebellar insufficiency, gait disorders (with wide feet); pyramidal system disorders

(positive pathological reflexes, reduced abdominal reflexes, no limb strength disorders); polyneuropathic type of sensory disorders of lower extremities.

The described syndromes were diagnosed on the background of the patient's deteriorating condition and a visit to a neurologist regarding a significant gait disorder – about 2 weeks. Complaints of impaired memory, speech, worsening calculating ability, unsteadiness, unsteadiness when walking, pressure in the feet ('socks feel tight'), a feeling of lump in the throat, periodic itching in the left palm, occasional moderate pain in the lumbar spine, and urgent urge to urinate. After evaluation of complaints, medical history, progression of both neurological symptoms and focal changes due to repeated neuroimaging of the brain, the patient was admitted to the neurological department for multiple sclerosis.

After a standardized examination, the final diagnosis was made: multiple sclerosis, remitting-relapsing course, EDSS score – 4,5; symptomatic neurolysis. Moderate neurocognitive disorder.

Clinical case №2.

Patient M., 74 years old. Patient's complaints and relatives' observations: dizziness, short-term memory loss, fits of aggression, occasional affective reactions, disorientation of places (got lost several times - did not find home) and even own identity, does not remember his episodes of aggression. Complaints and deterioration of the patient's condition for the last 1.5 months after inpatient treatment of pneumonia in the therapeutic unit. These symptoms and medical history determined the patient's pathway to the psycho-neurological department. After a more detailed and thorough analysis of the complaints, medical history, and previous clinical examinations, focus shifted to the presence of sharp fluctuations in blood sugar (from 2.5 to 20 mmol/l) recorded in the medical conclusion from intensive therapy. This altered the patient's pathway and he was admitted to the therapeutic department to determine the degree of decompensation of type 2 diabetes mellitus (15 years of disease). Once glycaemia was normalized and diabetes compensation was achieved, cognitive and mental disorders were completely regressed, except for a decrease in short-term memory.

Given that cognitive impairment has become the leading and most significant symptoms for patients, significantly affecting their quality of life, we would like to draw attention to the clinical significance of neurocognitive disorder symptoms in medical practice.

Key terms and definitions of cognition and its disorders [2, 3].

Cognition is defined as the process/function of information processing performed by the brain which includes aspects of thinking, such as attention, memory, executive functions, understanding and speech formation, calculating ability, visual perception and praxis skills (the ability to conceptualize, plan and organize movements).

Cognitive ability is a basic skill that contributes to a person's ability to carry out everyday activities.

Cognitive impairment is when cognitive abilities are impaired and a person has problems with cognitive processing, which can begin to affect what they can do in their

daily lives. Cognitive impairment is a description of symptoms that occur as a result of different conditions or circumstances.

Cognitive dysfunction is a functioning that is below the expected normative level or a loss of ability in any area of cognitive functioning.

Neurocognitive disorder has the following clinical stages [2]:

Early stage: patients may become less social than at the initial stage and demonstrate changes in personality and mood. Denial of symptoms of cognitive impairment and attempts to mask them are common. At this stage, patients are drawn to familiar situations and people when they can rely on their long-term memory. New situations and tasks can cause stress and anxiety.

Intermediate stage: patients need some assistance to perform basic daily activities, including showering and dressing. They are unable to recall important information, such as the names of family members or their medications, on an ongoing basis. Given the significant memory impairment, people in this stage may experience distress, which can often manifest as behavioral and psychological symptoms of NCD.

Late stage: patients require excessive assistance in all activities of daily life. They still retain the ability to walk and eat, but require round-the-clock supervision.

Final stage: patients are bedridden and require full and constant care.

To optimize the work of primary care physicians, using the updated guidelines, a diagnostic search algorithm for patients with NCD can be used, which can be implemented at different levels of care.

Diseases that have symptoms of cognitive impairment at different stages of clinical progression [5, 7].

- Vascular brain diseases (cerebral infarction and haemorrhagic stroke in strategic areas of the brain, multi-infarction, small vessel disease, combined vascular lesions).
- Toxic and dysmetabolic encephalopathy due to: hypoxaemia (sleep apnoea, chronic pulmonary insufficiency), paroxysmal cardiac arrhythmias), hepatic and renal failure, hypoglycaemia, hypothyroidism, thyrotoxicosis, hypopituitarism (insufficiency of the pituitary gland), deficiency states (insufficiency of vitamins B6, B12, folic acid), industrial and domestic intoxication (heavy metals, solvents, insecticides, alcoholism, drug addiction),
- Impact (side effects, overdose) of certain drugs (antidepressants, anxiolytics, hypnotics, anticonvulsants, antihistamines, antiarrhythmics, hypotensive, anticholinergics, chemotherapeutic drugs, radiation encephalopathy).
- Neuroinfections and demyelinating diseases (multiple sclerosis, HIV-associated encephalopathy, acute or subacute meningitis and encephalitis, autoimmune encephalitis, neurosyphilis, leukaemia, etc.)
- Traumatic brain injuries – acute ones and their consequences
- Brain tumours – primary and metastases.
- Paraneoplastic conditions (limbic encephalitis).
- Disorders of cerebrospinal fluid dynamics (hydrocephalus, intracranial hypertension).

- Emotional and other mental disorders (depression, mania, schizophrenia, etc.).
- Sleep and wakefulness disorders.

Algorithm for examination patients with symptoms of cognitive impairment

Mandatory diagnostic algorithm based on symptoms of neurocognitive disorder [1, 2, 3].

- Medical history (subjective, objective, family, social, educational; course or permanent medication; TBI)
- Neurological status
- Neuropsychological tests (cognitive tests, depression assessment scales, detection of behavioral disorders)
- Psychiatric status (detection of psychotic and behavioral disorders)
- Somatic status (chronic diseases in which the NS becomes a target organ);
- Assessment of hearing and visual impairment
- Laboratory parameters (haemogram, electrolytes (Na, K, Cl, Ca, PO4), parameters of kidney and liver function, blood sugar, parameters of thyroid function (TSH, T4), vitamin B12 / folic acid)
- MRI (cerebral cortex condition, atrophy patterns) or CT scan of the brain (without or with contrast - depending on the suspected pathological process)

An additional diagnostic algorithm based on symptoms of neurocognitive disorder (with a certain medical history and no pathological changes in mandatory tests): [1, 2].

- EEG
- Analysis of biological fluids, including cerebrospinal fluid (τ-protein, phospho-τ-protein, amyloid β-42 peptide, 14-3-3 protein)
- Serological tests (RW, HIV), parathyroid hormone, antineuronal antibodies, thyroid antibodies (antibodies to thyroglobulin) / (microsomal thyroid antibodies)
- Single photon emission CT (SPECT) (catabolism, dopamine transporters)
- PET (positron emission tomography) (glucose metabolism, amyloids)
- Dopamine transporters (SPECT or PET)
- Genetic examination (apolipoprotein E, autosomal dominant mutations, CADASIL syndrome (cerebral autosomal dominant arteriopathy syndrome combined with subcortical infarctions and leukoencephalopathy), Huntington's disease)

Conclusions.

These clinical cases confirm that neurocognitive disorder is a syndrome that can be primary or concomitant. And the prediction of its reversibility or progression depends on the etiology of pathological brain changes and the established nosological form of the disease.

Psychoeducation of patients at certain risk groups and their family members about the development of possible symptoms of neurocognitive disorders is necessary.

Neurocognitive disorders have a significant socio-economic burden on both patients' families and territorial communities.

A clinician who encounters symptoms of NCD in patients of different age groups with polymorbid pathology should take into account and analyze a number of factors, anamnestic data, the course of both somatic and neurological diseases.

The first clinical case demonstrates that one patient can have different pathological conditions that are accompanied by symptoms of neurocognitive disorder in their clinical scenarios.

The second clinical case focuses clinicians' attention on the peculiarities of the course of diabetes mellitus in elderly patients with hypoglycaemic and hyperglycaemic laboratory. Such syndromes that occur without clear clinical symptoms, when only neurocognitive impairment comes to the fore as a manifestation of decompensation of the underlying disease.

The observation of patients from different risk groups developing neurocognitive disorder should be accompanied by an assessment of patients' cognition in the dynamics, have a clear diagnostic algorithm of actions with treatment evaluation and prognosis of the course of the disease for each individual patient. This approach allows us to make a joint decision along with the patient and their relatives, optimizing the patient's quality of life and finding the best treatment option for neurocognitive disorder.

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