MINISTRY OF HEALTH OF THE REPUBLIC OF UZBEKISTAN

TASHKENT MEDICAL ACADEMY

EARLY DIAGNOSIS OF COGNITIVE IMPAIRMENT IN NEUROMOTOR DYSKINESIA PATIENTS AND PRINCIPLES OF CORRECTION

Methodological recommendations

Tashkent-2014

Compiled by:

Matmurodov R.J. - Senior Researcher - Researcher Department of Nervous Diseases TMA , Ph.D.

KhalimovaKh.M - Professor, Department of Nervous Diseases TMA, MD

Raimova M.M - Assistant Professor of Nervous Diseases TMA, Ph.D.

Reviewers:

MadjidovaY.N. - Head of the Department of Nervous and children's nervous diseases and medical genetics TashPMI , MD, professor

Yakubova M.M. - Department of Nervous Diseases TMA , MD

Guidelines discussed at the meeting of the problem commission TMA protocol № ___ of___ 2014.

Guidelines approved at the meeting of the Academic Council of TMA, protocol № ___ of___ 2014.

Guidelines are intended for practitioners, neurologists and general practitioners.

Secretary of the Academic
Council of TMA, docent, Ph.D.Nurillaeva N.M.

INTRODUCTION

Actual problem of modern neuroscience is the study of the pathogenesis, improved methods of diagnosis and treatment of cognitive impairment in patients with neuromotor dyskinesia [2,5,6]. Neuromotor dyskinesia, extrapyramidal systems are pathology and occur as different giperkinezami. They include Parkinson's disease and parkinsonism syndrome, essential tremor, torsion dystonia, chorea hyperkinesis, etetoidny hyperkinesia, Huntington's chorea, hepatolenticular degeneration, ballistic hyperkinesis, myoclonus, cider and other Tourette hyperkinesis. In these patients, found involuntary movements. When neuromotor dyskinesia and non-motor disorders found that exacerbates the disease in a timely manner and reduce the quality of life of patients. This includes cognitive, emotional and personality, autonomic, mental disorders and sleep disorders [11,13].

In PD in almost all patients at the early stages of developing a violation of higher mental functions. Thus, mild cognitive disturbances can be detected in nearly 50 % of patients with PD, and in 30-40 % of cases diagnosed moderate. According to population studies dementia observed in 20-40% of patients with PD .(Aarsland D., 2005). Longitudinal studies the prevalence of dementia reaches, according to some estimates , 80 % (Aarsland D., 2003). Long-term follow up of patients incidence of severe cognitive impairment varies from 18 to 80 % [16].

The clinical picture of cognitive disorders in the early stages of the disease dominated regulatory disorders: decreased activity and initiatives, lack of planning, the difficulties of constructing and monitoring of the program, the inability to switch from one stage to the next cognitive activity. These disorders underlie disorders of memory, attention, visuospatial functions and thinking [12,20,23].

Neuropsychological studies suggest that cognitive impairment in patients with Parkinson arise mainly as a result of subcortical lesions departments (SJ Huber, JL Cummings, 1992). Individuals with PD cognitive impairment can occur in the absence of express cortical damage (B. Dubois et al., 2000), suggesting that the value of subcortical structures in their pathogenesis.

In the long BP computed tomography often find a correlation of neuropsychological disorders and atrophic processes in the cerebral cortex (O.N.Sadikova , J.M.Glozman, 1997). It must be assumed that the loss of cortical neurons ,altsgeymeropodobnye changes and Lewy bodies in neurons of the cerebral cortex may play a role in the abuse of intelligence in addition to subcortical damage. In patients with Parkinson's identified high frequency altsgeymeropodobnyh changes in the cerebral cortex (DF Brown, 1999).

Essentsilanos tremor occur when speech disturbances, impaired memory and thinking disorders and visual conceptualization of spatial functions. Due to

dysfunction serebrofrontal projections appear slight and moderate cognitive impairment. Development of deep dementia for essential tremor vpolne not typical, but is disturbed emotional and personal functions. Observed reactive and personal anxiety disorders, and in the later stages of the disease depression begins . Olfaction disorder scarcely occurs, unlike Parkinson's Disease.

Almost all of extrapyramidal hyperkinesis found cognitive impairment, which aggravate the disease. And also, there are moderate reactive and personal anxiety disorders.

Under the cognitive functions commonly understood as the most complex brain function, by which the process of rational knowledge of the world. The concept of cognitive functions include memory, gnosis, language, praxis and intelligence.

Memory - the ability of the brain to absorb , retain and reproduce the necessary information for the current activity . The memory function is related to the activity of the brain in general, but especially important in the process of memorizing the current events have structures hippocampal circle. Pronounced memory impairment to life events are usually denoted by the term " amnesia."

Gnosis is a function of perception, processing and synthesis of elementary sensory data into coherent images. Primary disorders of Gnosis (agnosia) develop the pathology of the posterior parts of the cerebral cortex , namely the temporal , parietal and occipital lobes .

Speech - is the ability to share information through statements. Speech disorders (aphasia) most often develop in the pathology of the frontal or temporal-parietal regions of the brain. In this defeat temporoparietal departments leads to all sorts of disorders of speech understanding, and in the pathology of the frontal lobes initially disrupted the ability to express their thoughts through speech utterances.

Praxis - the ability to acquire, retain and use a variety of motor skills. Violations of praxis (apraxia) most often develop in the pathology of the frontal or parietal lobes of the brain . In this pathology of the frontal lobes leads to disruption of the ability of constructing motor program , and parietal lobes of the pathology - to misuse of his body in the process of motor act when the program intact movements.

RISK FACTORS COGNITIVE IMPAIRMENT.

1. Age (nekorrigiruemy factor) 2.Male;3. heredity;4. Hypertension 5. Hypotension; 6.Diabetes mellitus;7. Hypercalcemia; 8. Diseases of the heart (atrial fibrillation), 9.Metabolic syndrome (type 2 diabetes, hypertension, obesity); 10.Kurenie; 11.Zloupotreblenie alcohol 12.Hyperhomocysteinemia 13.Low levels of education;

CLASSIFICATION OF COGNITIVE IMPAIRMENT.

Can be divided into mild, moderate and severe (VVZakharov , Yahno NN, 2005) [7,8,9,14,15] .

1. Mild cognitive disorders (MCD).Currently , according to the Clinic of Nervous Diseases. AY Kozhevnikov, perhaps even more early diagnosis of cognitive dysfunctions. While MCD are predominantlyneurodynamic character: suffer cognitive processes such features as speed of information processing , the ability to quickly switch from one activity to another, memory [6].

2. Mild cognitive impairment (RBM). This term was proposed in 1997 by the American neurologist R. Petersen to refer preddementnyh stages of Alzheimer's disease (English «mild cognitive impairment», MCI). The first diagnostic criteria for this condition reflects the " AlzheimerCooper " orientation , the diagnosis was based on the availability of objective and subjective memory impairment with relative preservation of other cognitive functions[20].

3 .Severe cognitive impairment (dementia). Dementia (dementia) - is acquired as a result of organic brain disease resistant impaired memory and other higher mental functions that lead to maladjustment in everyday life. The prevalence of dementia in Europe and in North America is from 5 % of those aged 65-70 years to 25 % of those over 80 years [22].

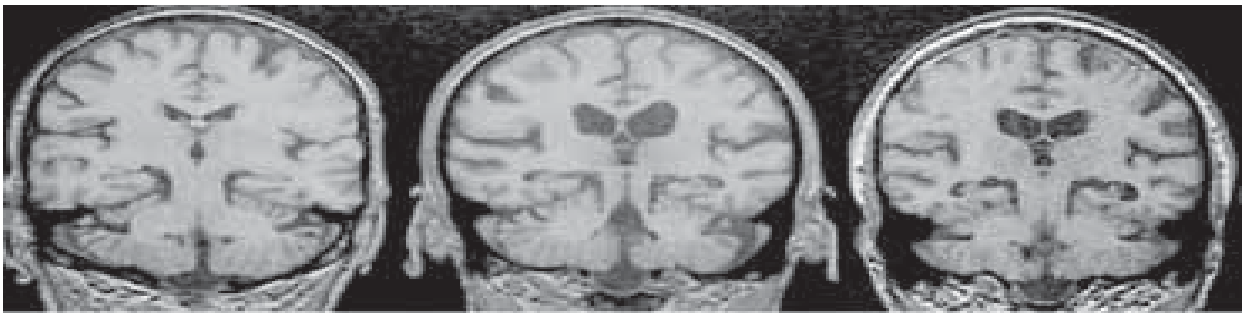
Diagnostic criteria for mild cognitive impairment .(NNYahno and soavt.2005).

1. Changes in the patient's personality lead to passivity or anxiety.
2 .Loss of critical self-evaluation.
3 .Deterioration of abstract thinking.
4 .Speech disorders.
5 . Deterioration of recognition of prior objects , acquaintances and friends .
6. Deterioration in the ability to think logically .

Diagnostic criteria for mild cognitive impairment " PoR.Petersen, 1999 and modification of 2004).

1.Snizhenie memory , as the words of the patient , and in the opinion of his closest associates (relatives or colleagues)
2.Nizkie indicators mnestic function , according to neuropsychological testing (reducing memory test results for at least 1.5 standard deviations from the average age norm) .
3.Sohranyaya cognitive functions in general
4.Net limitations in daily living
5.Dementsiya missing - the result of a brief rating scale
mental status (Mini-Mental State Examination, MMSE) is more than 24 points.
6.Otsenka clinical dementia rating scale is 0.5 points.
When mild cognitive impairment will be changes on MRI .(1 figure).

Figure 1. MRI of the brain (coronal slices of hippocampus changes)



Norma Mild cognitive impairment Alzheimer's disease

Types of mild cognitive impairment (O.S.Levin 2010) are amnesic , disregulatory (frontal) , multifunctional and MCI with predominant violation of any cognition.

Diagnostic criteria for the diagnosis of dementia:

1. Memory disorders , which are manifested in the ability to tackle memorization of new material, and in more severe cases - also in difficulty remembering previously learned information. Fouls appear as a verbal and nonverbal a modality.
Mental disorders should be objectified using neuropsychological methods.

2 . Violation of other cognitive functions , such as the ability tomaking judgments , thinking (planning, organization) and information processing . These violations must be objectified , by appropriate neuropsychological methods.

3 . A prerequisite for the diagnosis of dementia is a decline in cognitive function compared with higher baseline mnestiko - intellectual level .

4 . Cognitive impairment is determined on the background Saveconsciousness.

5 . Violation of emotional control or motivation or a changesocial behavior - at least one of the following : emotional lability , irritability , apathy , antisocial behavior.

6. These symptoms are observed for at least 6months with shorter observation can be a presumptive diagnosis .

In addition to the ICD-10 criteria for the diagnosis of dementia , both in clinical practice and in research are widely used criteria for the diagnosis of the disease state of American leadership on statistics and diagnosis of mental disorders (DSM-IV).

In accordance with this guidance , based on the diagnosis of various nosological forms of dementia based on the following general principles :

A. Memory impairment , as a violation of active playinformation and a failure recognition material

B. other cognitive disorders , at least one offollowing : praxis , gnosis , language, executive functions .

B. As A, and B are expressed in such a degree that, independently from each other,have a clinically significant negative impact on daily life .
G. Violations of memory and other cognitive functions develop inresult set of organic brain disease .
D. Violations of memory and other cognitive functions are accompanied by a clear consciousness of the patient.
When comparing the criteria for a diagnosis of dementia ICD-10 and DSM-IV, most researchers note that ICD-10 criteria .
Is divided into three degrees of dementia:
easy - characterized by a limitation or disability at full or almost full preservation of functional ability ;
average - characterized partial loss of orientation , partial loss of ability to self ;
heavy - characterized by a marked disorientation and complete loss of household independence.

ETIOLOGICAL CLASSIFICATION OF DEMENTIA :

1. Primary degenerative dementia : Alzheimer's disease, Pick's disease , senile amyloidosis , dementia with Lewy bodies
2.Secondary dementia in degenerative diseases: Huntington's chorea, Friedreich's ataxia, Parkinson's disease , progressive supranuclear palsy, strio - nigral degeneration, disease Headlight - idiopathic calcification of the basal ganglia , Wilson's disease, thalamic dementia
3. Vascular dementia: vascular dementia (lacunary condition), Binswanger's disease - subcortical arteriosclerotic encephalopathy, mixed cortical and subcortical infarcts, and inflammatory diseases of the blood vessels
4. Mixed vascular dementia atrophic
5. Secondary dementia due to intoxication: alcoholism, drug dementia (anticholinergics, antihypertensives, etc.)
6. Secondary dementia neurological diseases:
6.1.Kraniotserebralnaya injury : chronic subdural hematoma , traumatic encephalopathy , dementia boxers normotensive and occlusive hydrocephalus ; 6.2.Opuholi : meningioma (especially subfrontal) PCF tumor with hydrocephalus , glioma , metastases , kartsionomatozny meningitis 6.3.Infektsii nervous system: tuberculosis, AIDS dementia , toxoplasmosis, kriptokokkozny meningitis , syphilis, postentsefaliticheskom dementia, Whipple's disease , a disease Kreynttsfeld -Jakob disease, subacutesclerosingpanencephalitis Van Bogart , progressive leukoencephalopathy ; 6.4.Epilepsiya ; 6.5.Rasseyanny sclerosis; 6.6.Bolezn Markyafava - Bignami ; 6.7.Leykodistrofii

7. Secondary dementia on the background of somatic pathology: a deficiency of vitamin B12 and folic acid , hypo / hyperthyroidism and other thyroid and parathyroid glands , gipogliemicheskie status , chronic progressive hepatic encephalopathy , chronic uremic encephalopathy (in t.ch.dializnaya dementia) , chronic obstructive airway disease tract , chronic heart failure , cardiac arrhythmia , recurrent asystole , electrolyte disturbances

8. Disease with dementia masked:depression, schizophrenia, psychogenic pseudodementia

Vascular dementia can be divided , and mixed and degenerativecan be used to determine the scale Khachin :

ISCHAEMIC KHACHIN SCALE:

- acute onset - 2 , unsteadiness or gait disturbance -1 , fluctuating course-2, nocturnal disorientation -1 , relative integrity of personality-1 , depression -1, somatic complaints-1, emotional lability -1, hypertension-1, history of stroke -2 , alopecia syndromology -2, soft neurological sign -2 , other symptoms of atherosclerosis-2 .

amount of points 4 and less - Alzheimer's disease , the sum score of 7 or more - and the amount of vascular dementia 4-7 - mixed dementia . To distinguish vascular dementia from Alzheimer's dementia should address the following symptoms. (Table 1).

Table 1.Differential diagnosis of vascular dementia and Alzheimer's disease.

Signs	Alzheimer's disease	Vascular dementia
Vascular risk factors	+/-	++
Start	Gradually acute	Subacute , or gradual
For progressive	Sometimes with periods of apparent stabilization	With periodes stabilization and progress of symptoms
Cognitive violation	Sheniya predominate signs of temporomandibular dysfunction -the- variable crust (amnesia , acoustic- amnestic aphasia , impaired pro ¬ spatial functions , apraxia)	Signs of dysfunction of subcortical and frontal regions brady-phrenia, regulation violation of planning and control of mental activity, behavior change
Affective violation sheniya	+/++	+++
Motor violation	Sheniya possible at a later stage	Frequently develop at an early stage
Pelvic disorders	appear at a later stage	often appear at an early stage

These CT / MRt	1.Not changes (at an early stage) 2.Sserebral atrophy, especially in the medialtemporallobes 3.Edinichnye small foci in the periventricular white matter and basal ganglia.	1.Bilateral extensiveof subcorticalleukoaraiosis 2.Multiple bilateral-ronnie lacunar lesions in the basal ganglia(caudate nucleus), thalamus frontal lobes

Distinguish between different types of degenerative dementias. (2 - table).

Type of dementia	Disease
1.Korticoldementia 1.1 Front cortical dementia (dementia of the frontal type, frontotemporal dementia) 1.2 Rear cortical dementia (dementia of the Alzheimer type, parietal-temporal dementia)	Frontotemporal dementia Alzheimer disease
2. Subcortical (subcortical and frontal) dementia	Parkinson's disease Huntington's disease Progressive supranuclear palsy
3. Subcortical-cortical dementia	Dementia with Lewy bodies Creutzfeldt-Jakob disease Corticobasal degeneration

Criteria for diagnosis of dementia in Parkinson's disease.

Management of the Company for the Study of movement disorders include diagnostic criteria 4 groups:

1. The main symptoms.

If Parkinson's disease was identified before the onset of symptoms of dementia , the probable diagnosis of dementia in Parkinson's disease . On the contrary, the rule of " one year " states that if developed dementia for at least one year prior to the onset of symptoms of Parkinsonism , the probable diagnosis of " dementia with Lewy bodies ."

2. Clinical symptoms

The diagnosis of possible dementia in Parkinson's disease is made by analyzing the profile of the usual cognitive impairment in the presence of at least one symptom of conduct disorder.

3. Probable dementia in Parkinson's disease

Many symptoms do not exclude possible dementia of Parkinson's disease , but they do "possible" diagnosis ambiguous. For example, a history of comorbidities that can lead to cognitive impairment, without dementia [9,11,18,21] .

PRINCIPLES OF DIAGNOSIS OF COGNITIVE IMPAIRMENT.

To assess the cognitive neuropsychological research methods used. They represent a variety of tests and trials on memory and recall words and images, the recognition of images, the decision of intellectual tasks, the study of movement, etc. [4,9]. Complete neuropsychological examination reveals clinical features of cognitive impairment and put topical diagnosis. However, in routine clinical practice for a full neuropsychological examination is not always possible. Therefore, in the outpatient practice around the world are widely used so-called screening neuropsychological scales that allow to confirm the presence of cognitive disorders as a whole and evaluate them quantitatively. An example of such a scale is a brief screening scale assessment of mental status, which is given in the table. (Table 3)

MINI-MENTAL STATE EXAMINATION (MMSE).
M.F.FOLSTEIN, S.E.FOLSTEIN, P.R.HUGH, 1975 .

Trial	Evaluation
1.Orientirovka time: Name the date (day, month, year , day of week , time of the year)	0-5
2.Orientirovka in : Where are we? (country , region, city , clinic, floor)	0-5
3.Vospriyatie : Repeat three words : pencil , house, penny	0-3
4.Kontsentratsiya attention and expense : Serial account (" 100 subtract 7") - or five times : Say the word "land " on the contrary ,	0-5
5.Pamyat Remember the three words (see paragraph 3)	0-3
6.Rech : Show pen and watch, ask, "how is it called? "	0-2

Please repeat the sentence : "There is no if , and or but	
A 3 -stage command : " Take a right hand a piece of paper , fold it in half and put on the table"	0-1
Reading: " Read and follow " 1. Close your eyes 2 . Write a sentence	0-3
3. Figure	0-3
Total score	0-30

Interpretation of results

28 - 30 points - no cognitive impairment

24 - 27 points - preddementnye cognitive impairment

20 - 23 points - dementia mild degree 11 - 19 points - moderate dementia severity

0 - 10 points - severe dementia

FRONTAL ASSESSMENT BATTERY (FAB)

(V.DUBOIS et al . 1999).

Screening for dementia with a primary lesion of the frontal lobes or subcortical cerebral structures, that is, when the MMSE sensitivity may be insufficient battery proposed a method of frontal dysfunction.

1. Conceptualization. Patient is asked: "What is common between an apple and a pear?" Find the right answer, which contains a categorical generalization ("This fruit"). If the patient is difficult or gives a different answer, he was told the correct answer. Then ask: "What is common between a coat and a jacket?". "What is common between a table and a chair?". Each categorical generalization is estimated at 1 point. The maximum score in this subtest - 3 min - 0.

2. Fluency. Asked to close their eyes for a minute and call -word "with".While proper names are not counted. Result: more than 9 words per minute - 3 points, from 7 to 9 - 2 points, from 4 to 6 - 1 point, less than 4 - 0 points.

3. Dynamic movements. The patient is offered for a doctor to repeat with one hand a series of three movements: Fist (placed horizontally, parallel to the table surface) - edge (brush is placed vertically on the medial border) - Palm (hand placed horizontally, palm down). At the first presentation of a series of patient monitors only doctor in the second presentation - motion repeats doctor finally makes the following two series of their own. At independent performance tips patient

unacceptable. Result: the correct execution of the three series of movements - 3 points, two series - 2 points, one series (with the doctor) - 1 point.

4. Simple choice reaction. Is instructed: "Now I will check your attention. We will thump. If I hit once, you have to strike twice. If I hit twice in a row, you have to hit only once." Tapping the following rhythm: 1-1-2-1-2-2-2-1-1-2. Evaluation results: correct execution - 3 points, no more than 2 errors - 2 points, a lot of mistakes - 1 point, full backup rhythm doctor - 0 points.

5. Complicated choice reaction. Is instructed: "Now if I hit once, then you should not do anything. If I hit twice in a row, you have to hit only once. " Thump: 1-1-2-1-2-2-2-1-1-2 . Outcome assessment similar to Step 4.

6. Study grasping reflexes. The patient sits, he is asked to put his hands on his knees, palms up and check grasping reflex. Lack of grasp reflex is worth 3 points. If a patient asks if he should grab put a score of 2. If the patient is missing, he is instructed not to do so and grasping reflex checked again. If there is no re-examination is placed reflex 1, otherwise - 0 points.

Thus, test results can vary from 0 to 18, with 18 points correspond to the highest cognitive abilities.

RESEARCH IMPAIRED ATTENTION

To investigate violations of attention used Schulte test that helps table.

(Table 4). Schulte tables are a set of numbers (1 to 25), arranged randomly in the cells.

4 table. Schulte table.

1

14	18	7	24	21
22	1	10	9	6
16	5	8	20	11
23	2	25	3	13
19	15	17	12	4

2

22	25	7	21	11
6	2	10	3	23
17	12	16	5	18
1	15	20	9	24
19	13	4	14	8

3

9	5	11	23	20
14	25	17	1	6
3	21	7	19	13
23	12	24	16	4
8	15	2	10	22

4

21	12	7	1	20
6	15	17	3	18
19	4	8	25	13
24	2	22	10	5
9	14	11	23	16

5

5	14	12	23	2
16	25	7	24	13
11	3	20	4	18
8	10	19	22	1
21	15	9	17	6

The subject must name the display, and in a given sequence (typically increasing from one to twenty- five) all the figures. Offered four or five consecutive non-

identical tables Schulte, in which figures arranged in a different order. Psychologist records the time spent on the test and showing of naming the entire series of digits in each table individually.

Are the following indicators:

1) the excess of the regulatory (40-50 seconds) the time spent on pointing and naming of some figures in the tables ;

2) temporal dynamics of indicators in the survey process for all five tables.

CLOCK DRAWING TEST (CDT)

To study the degree of change in cognitive decline in dementia often use easy to use and accurate clock drawing test. It can be carried out if there is suspicion of starting dementia syndrome.

The simplicity and extremely high information content of this test, including the mild dementia, making it one of the most commonly used tools for clinical diagnosis of this syndrome.

The test is conducted as follows. The patient was given a clean sheet of unlined paper and a pencil. The doctor says, "Please paint round the clock with the numbers on the dial, and that the clock showed a quarter to two."

The patient should independently draw a circle, put in the right places all 12 numbers and draw arrows pointing to the correct position. Normally, the job is never straightforward.

If errors occur , they are measured quantitatively by a 10-point scale:

10 - points - normal, draw a circle , the numbers in the right places ,
arrows show preset time;

9 points - minor inaccuracies location arrows ;

8 points - more noticeable errors in the location of the shooter ;

7 points - arrows show completely the wrong time ;

6 points - arrows do not perform their function (eg ,
right time circled);

5 points - wrong location number on the dial : they
followed by a reverse (counterclockwise) or
distance between unequal numbers ;

4 points - lost integrity hours, some properties are missing or
located outside the circle ;

3 points - the number and dial are no longer connected to each other;

2 points - the activity of the patient indicates that he is trying to
execute the statement , but to no avail ;

1 point - the patient does not attempt to execute the instruction.

Performing this test is broken as in dementia of the frontal type and Alzheimer's dementia and with dementia, mainly affecting subcortical structures. For the

differential diagnosis of these conditions, if not properly independent figure, the patient is asked to finish the arrows on the already painted (the doctor) dial with numbers. In dementia of the frontal type and dementias with a primary lesion of subcortical structures of mild to moderate severity of suffering only independent drawing, while the ability to drive the arrows painted on the dial already saved. Dementia algeymerovskogo is violated as a separate drawing, and arrows on the ability to drive the already finished dial.

PRINCIPLES OF MANAGEMENT OF COGNITIVE IMPAIRMENT:

- Early diagnosis and early treatment
- A comprehensive survey of patients - an exception causes "potentially reversible "CN
- Secondary prevention rise CN - treatment of CVD optimization microcirculation
- Establishing the exact nosological diagnosis
- Neurotransmitter therapy - optimization of processes of synaptic transmission
- Dynamic observation - diagnosis and adjustment of therapy
- The main purpose of conducting the lungs and mild cognitive impairment - prevention of progression of cognitive disorders (prevention of dementia).

Treatment of patients with the syndrome of cognitive impairment in patients with neuromotor dyskinesia should be individualized and aimed at contributing factors which are determined by clinical and instrumental studies. In many degenerative diseases of the brain with cognitive disorders clinic very well proven drugs affecting the neurochemical basis of cognitive functions. Thus, in the treatment of dementia are widely used acetylcholinesterase inhibitors and NMDA- receptor modulators. For mild to moderate cognitive impairment has mainly age-related positive experiences agonists of postsynaptic receptors to dopamine [7,9]. As for dementia, and with less pronounced cognitive impairment of vascular etiology is justified and necessary treatment of the underlying cardiovascular disease and optimization of cerebral microcirculation using vasoactive drugs. When dismetabolic encephalopathy key treatment is adequate treatment of the primary somatic or endocrine disease, or withdrawal of external intoxication.Neurosurgical

treatments used in the presence of brain tumors and normal pressure hydrocephalus [19].

Selecting treatment strategies determined by the severity of cognitive impairment and their etiology. Dementia of mild to moderate severity associated with asthma, cerebral vascular insufficiency, or mixed vascular and degenerative etiology of dementia drugs of first choice are acetylcholinesterase inhibitors (galantamine , rivastigmine , donepilzin) and / or memantine . Use of these drugs has undoubted positive effect on memory and other cognitive functions , helps to normalize behavior improves adaptation to everyday life and generally improves the quality of life of patients and their relatives.

At the present stage of development of neurology therapy strategy of cognitive impairment is determined to a greater extent the severity of disorders. Dementia of various etiologies (Alzheimer's disease, Parkinson's disease, dementia with Lewy bodies) is the most proven acetylcholinesterase inhibitors and memantine. However, at the stage of cognitive impairment nedementnyh these drugs are not effective enough. Therefore, in the treatment of mild cognitive impairment and the most widely used drugs neyrometabolicheskie . Are the first choice drugs with neuroprotectiveeffect.

Tserakson first neuroprotective with a proven positive effect.Tserakson (citicoline , cytidine -5- diphosphocholine) - is an organic substance that belongs to a group of nucleotides - biomolecules , which play an important role in cellular metabolism and is an essential precursor of phosphatidylcholine (lecithin) , a major phospholipid of all cell membranes , including neuronal membranes . Choline is also involved in the synthesis of acetylcholine and choline ,citicoline is a donor in the synthesis of acetylcholine [3,15,16,17,19].

Citicoline also affects the metabolism of neyrotrnasmitterov and increases in dopamine synthesis nkotoryh brain regions. Given these observations, we investigated the effectiveness Tseraksona(citicoline) on cognitive impairment in Parkinson's disease . 58 patients with PD, aged 30 to 65 years (mean age 55,14 ± 6,7 years). The patients were divided into 2 groups: I- group (38 patients) were obtained on a background antiparkinsonian therapy citicoline (Nycomed). Of them 23 (60.5 %) patients were identified dodementnye cognitive impairment in 9 (23.7%) patients with dementia and mild degree in 6 (15.8%) patients with moderate dementia severity. II- group (20 patients) received antiparkinsonian therapy and piracetam , of whom 13 (65%) patients had cognitive impairment dodementnye in 4 (20%) patients with dementia and mild degree in 3 (15%) patients with moderate dementia severity. Citicoline (Nycomed) administered intravenously to 100.0 ml of saline 0.9 % sodium chloride daily dose of 1000 mg per day for 10 days.

All patients performed before and after treatment clinical neurological and neuropsychological research. During extended neuropsychological study used the following methods: MMSE, CDT, BTLD, Shulte. Also evaluated subjective symptoms: headache, dizziness, tinnitus, weakness, loss of memory (forgetfulness , confusion).

After treatment, 72% of patients in the first group taking citicoline, noted significant improvement, 18% moderate and 10% is insignificant. Of all the patients who had complained of any memory impairment, 76.0 % after treatment were asymptomatic. Headache before treatment was 36 (94.7 %) patients after treatment 28.9% complaints of headaches persisted , the remaining 72.1% of patients had a moderate reduction of headache . Dizziness stopped 59.1 % of patients with this complaint, the noise in the head in 57.1 % of patients, 60.6 % of patients in a better mood, and fatigue in 53.1% of patients stopped.

The results of neuropsychological testing after 4 weeks of treatment in patients treated with citicoline showed objective improvement in cognitive function. GPA significantly increased ($p < 0.01$) in the short scale assessment of mental status in patients with mild cognitive impairment , also noted positive changes during the test battery and clock drawing test frontal dysfunction. In the comparison group these indicators also changed towards positive dynamics , but these changes were relatively less pronounced than in group I patients

Assessing the impact on cognitive function tseraksona was also carried out on the 12 th week of the start of treatment in 20 patients using the same neuropsychological scales. Results on a scale KSHOPS 12 - week treatment were significantly higher compared with the original data, and in relation to previous levels at the same level, whereas the comparison group showed a significant increase was the severity of cognitive impairment. Clock drawing test is more sensitive than KSHOPS since using this test can estimate the visual- spatial praxis. During treatment tseraksonom proportion of patients with impaired spatial praxis was significantly decreased ($p < 0.01$) by the 4th week of treatment and this trend continued for the 12th week of treatment . Battery of tests on the frontal dysfunction shows that during treatment tseraksonom disorder dynamic praxis , conceptualization , simple choice reaction , and sophisticated choice reaction fluency was significantly decreased by the 4th week of treatment and remained at the same level for the 12th week of treatment . Indicated a statistically significant (at $p < 0.05$) was observed in the dynamics of the whole sample of patients.

When comparing the results of neuropsychological testing before and after treatment tseraksonom depending on the degree of cognitive impairment significantly initial significant results of treatment ($p < 0.01$) were observed in

patients with cognitive impairment dodementnymi. These patients had marked improvement in the performance MMSE, CDT, BTLD.

Thus, as a result of the study was found tseraksona efficacy in the treatment of cognitive disorders in Parkinson's disease. According to neuropsychological testing, marked effectiveness was expressed to a greater extent in patients with dodementnymi cognitive impairment than in patients with mild to moderate dementia severity.

References:

1. Артемьев Д.В., Захаров В.В., Левин О.С. и др. Старение и нейродегенеративные расстройства: когнитивные и двигательные нарушения в пожилом возрасте / Под ред. Н.Н. Яхно. М. – 2005. – 65с.
2. Бачинская Н.Ю. Синдром мягкого когнитивного снижения у лиц старшего возраста//Журнал АМН Украины. – Украина, 2004. – Т. 10. – № 3. – С. 552-562.
3. Бойко А.Н., Кабанов А.А. Цитиколин: Новые возможности нейропротекции и фармакотерапии при заболеваниях нервной системы // Журнал. Фарматека. – Москва, 2007. – №15. – С. 57-63.
4. Бугрова С.Г. Сравнительная характеристика умеренных нарушений дегенеративной и сосудистой этиологии//Неврологический вестник. – Москва, 2008. – С. 47-49.
5. Буклина С. Б. Нарушения памяти и глубинные структуры головного моз га // Журн.Неврология и психиатрия. – Москва, 1999. – №9. – С. 46-54.
6. Дамулин И.В. Легкие когнитивные нарушения//Consiliummedicum.– Москва, 2004. – № 2. – С. 149-153.
7. Захаров В.В. Деменция при болезни Паркинсона // Неврол. Журн. – Москва, 2006. – №1. – С. 13-18.
8. Захаров В.В. Когнитивные нарушения в неврологической практике // Журнал «Трудный пациент». – Москва, 2005. – /Архив/№5. –С.23-28.
9. Захаров. В.В. Когнитивные нарушения при болезни Паркинсона // Consilium-Medicum. – Москва,2005. –Том 7. –-№8. –С. 2-8.
10. Захаров В. В., Яхно Н. Н. Нарушение памяти. – М.: Геотар. Мед. – 2003. –150с. 11.
11. Левина О.С . Сборник статей. Экстрапирамидные расстройства вчера, сегодня, завтра. – М., 2013. 328 с.
12. Стёпкина Д.А., Захаров В.В. Прогрессирование когнитивных нарушений при болезни Паркинсона // Клиническая геронтология. – Москва, 2007. – №8. – Т.13. – С. 55-59.
13. Шток В. Н., Левин О. С., Федорова Н. В. Экстрапирамидные расстройства: Руководство для врачей. - М.: МИА, 2002. - 175 с.
14. Яхно Н.Н., Захаров В.В. Легкие когнитивные расстройства в пожилом возрасте // Неврологический журнал. – Москва, 2004. –Т. 9. – № 1. – С. 4-8.

15. Яхно Н.Н., Захаров В.В. Легкие и умеренные когнитивные нарушения в пожилом возрасте//Терапевтический архив: ежемесячный научно-практический журнал. – Москва,2 006. – Т.78. №1. – С. 80-83.
16. Aarsland D., Andersen K., Larsen J.R.,et.al. Risk of dementia in Parkinson s disease: a community-based, prospektive study //Neurology. – 2001. – Vol. 56. – P. 730-736.
17. Alonso de Lecinana M., Gutierres M, Roda J.M. et al. Effect of combined therapy with thrombolysis and citicoline in a rat model of embolic stroke //Neurol Sci. – 2006. – V.77 – P. 121-129.
18. Adibhalta R.M. et al. Citicoline: neuroprotective mechanisms in cerebral ischemia//J.Neurochem.– 2002.– V. 80.– P. 12- 23.
19. Adibhalta R.M., Hatcher J.F. Cytidine 5'-diphosphocholine (CDP-choline) in stroke and other CNS disorders//Neurochem. Res.– 2005.– V. 30.– №1.– P. 15- 23.
20. Chaudhuri R.L., Yealy D.G, Shapira A.H. Non-motor symptoms of Parkinson s diseaseae//Lancet Neurol. – 2006. –V.5. – P. 235-245.
21. Davalos A., Castillo J., Alvares-Sabin J.et.al. Oral citicoline in acute ischemic stroke: an individual patient data pooling analysis of clinical trialis//Stroke.- 2022.- V.33.- P. 2850-2857.
22. Petersen R.S., Touchon J. Consensus on mild cognitive impairment //Research and Practice in Alzheimer's disease. – 2005. – V.10. – P. 24-32.
23. Rachel G. G., Andrew S. H.H.Cognitive Impairment in Parkinson’s Disease and Dementia with LewyBodies:A Spectrum of Disease //Neurosignals. – 2008. –V.16. – P. 24-34.