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Correction Of Cognitive Disorder In Patients With HIV - Associated Encephalopathy

Zokirov M.M.,

Ferghana Branch Of Tashkent Medical Academy, Uzbekistan

Madjidova Y.N.
Taskent Pediatric Medical Institute, Uzbekistan

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Abstract

HIV infection is one of the most pressing medical and social problems in the whole world. This article discusses one of the varieties of the complication of HIV infection such as HIV associated encephalopathy. Clinical features and diagnostic criteria for the disease are considered. Patients were examined using the Montreal cognitive function assessment scale and symptomatic treatment with the nootropic drug choline alfoscerat.

Keywords: HIV infection, human immunodeficiency virus, acquired syndromeimmunodeficiency, cognitive status, encephalopathy, MoCA - test, choline alfoscerat.

Introduction

The AIDS virus was first found in 1983 at the same time in France at the Institute. L. Pasteur and the United States in the laboratory of R. Gallo almost simultaneously. This virus belongs to the family of retroviruses, to the subfamily of lentiviruses. Nowadays the main ways for the penetration of the AIDS virus into the brain and cerebrospinal fluid are perineural, hematogenous, and through the gaps between the capillary endothelial cells [1,2]. Neurological features of neoro AIDS are divided into primary and secondary. Primary are associated with the direct damaging factor of the virus, autoimmune processes of the body and the neurotoxic effect of antiretroviral therapy. Symptoms of a primary lesion of the nervous system in HIV infection are divided into lesions of the central

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nervous system and lesions of the peripheral nervous system [3,5,6]. Damage to the central nervous system is called HIV-associated cognitive-motor syndrome, which includes three forms or diseases:

1. HIV-associated dementia (HIV encephalopathy);
2. HIV-associated myelopathy;
3. HIV-associated minimal cognitive-motor disorders. [4]

HIV encephalopathy is a common form of primary damage to the central nervous system. It is seen in 60% of AIDS patients. In recent years, due to highly active antiretroviral therapy, a decrease in the frequency of this form of neuroAIDS has been observed. In 25% of patients, it is observed as the primary manifestation of AIDS, that is, before the onset of other pathognomotic clinical syndromes. [4,5] In the study and synthesis of literature, as well as including own observations, the following clinical criteria for the diagnosis of HIV encephalopathy are distinguished. [6.7]. The triad of syndromes is characteristic: 1. intellectual-mnestic disorders; 2. altered behavioral reactions; 3. motor disorders that develop gradually. The first signs of gradually developing dementia are usually mild memory disorder, impaired attention and concentration, difficulty counting and reading, emotional and behavioral disorders, reactive depression, apathy, lethargy, asthenic syndrome, larvated depression, and in rare cases, acute psychosis may develop which later are growing. [6.7] At the same time, organic disorders of the central nervous system are intensified, such as: pyramidal paresis, oculomotor disturbances, parkinsonism, ataxia, rarely epileptic seizures. [5] In more than 30% of cases in the cerebrospinal fluid there is a slight lymphocytic pleocytosis, (not more than 50 cells in 1 μl), a slight increase in protein concentration (5001000 mg / l), a high titer of antibodies to HIV, the more obvious symptom of which is especially important when high content of antibody titer in cerebrospinal fluid [6]. In the study of EEG in the early stages, changes are not characteristic. When the disease progresses, delta and theta slow waves are recorded. Changes in the state of the EEG also correlate with the severity and length of the disease [5,6]. With CT and MRI of neuroimaging, diffuse atrophy of the brain, expansion of subarachnoid spaces and ventricles of the brain, subcortical multifocal focal changes in the frontal and parietal lobes and periventricular, hyperintensive, without mass effect and do not accumulate contrast medium, that is, with the symptoms of secondary differentiate with multiple sclerosis. Changes in the frontal lobes are detected in the early stages and remain pronounced at all stages of the course of the disease [6]. The tactics of treating neuroAIDS follows from the treatment of AIDS itself and the characteristics of lesions of the National Assembly. In primary neuro AIDS, the appointment of specific highly active antiretroviral therapy (HAART) can have a significant effect, slowing down the progression of the disease and temporarily stabilizing the patient's condition. Nevertheless, in the first stage, the implantation therapy is decisive. In particular, in the treatment of manifestations of HIV encephalopathy, soft nootropics such as noofen, adaptol, phenotropil can be used. A good effect was obtained from the use of cerebrolysin, which has cerebroprotective properties, as well as citicoline, which improves synaptic transmission and plasticity of brain tissue by increasing the interaction of neurons and glia cells, preventing damage to dendrites (which is especially important in the treatment of

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subcortical dementia) [6,7] Among drugs with a neurotrophic effect in vascular and metabolic dementia, the drug Choline Alfoscerate is more often used today. This drug excites mainly central cholinergic receptors, that is, it has a cholinomimetic effect. In the body, choline alfoscerate is broken down into choline and glycerophosphate, which is a precursor to the neurotransmitter acetylcholine and a component of the membranes of the neurons of phosphotidylcholine. [10] By stimulating cholinergic activity, it improves the plasticity of neuronal membranes and the function of receptors, which in turn improves blood To correct cognitive disorder in patients with HIV - encephalopathy, we decided to use the drug choline alfoscerate in a dosage of 1000 mg intravenously for 10 days and then continue treatment with the drug choline alfcecerate in a tabulated form 400 mg for 6 months.possibilities of the drug choline alfoscerat in the treatment of HIV encephalopathy require further study and remains relevant today. [10.11]

Purpose of the study. The study of the cognitive status of HIV-infected patients, the study of the effect of nootropics on the cognitive status of patients with HIV - encephalopathy.

Materials and methods

For the research 23 patients undergoing treatment at the Ferghana branch of the Republican AIDS Center were randomly selected. Among them, 13 men (56.5%) and 10 women (43.5%), the average age of patients was 31.7 ± 1.1 years. For the study of the cognitive, a battery of tests was chosen — the Montreal scale for assessing cognitive function or, in abbreviated form, IOCA — the test as the most sensitive and convenient for the study of patients with cognitive disorder. The collection of single-sided tests consists of 30 points and runs on average in 12 minutes. [8] This scale evaluates the seven most significant cognitive functions, which include: short-term memory (5 points), spatial and visual ability (4 points), aspects of the executive function (3 points), attention and concentration (5 points), language functions (5 points), abstract thinking (2 points), orientation in time and space (6 points). The maximum score for this test is 30 points, of which 26 to 30 are the norm, from 22 to 25 means mild cognitive disorder, from 17 to 21 moderate cognitive disorder, from 16 and below severe cognitive disorder. [8.9]

The results of the study

As a result of the research , it was found that the average score of the MoCA test among patients is 21.6 ± 0.85 points. Data on the severity of cognitive disorder are displayed in Table No. 1, from which it follows that the main contingent of patients falls on the level of mild cognitive disorder

Table number 1

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Degree of cognitive deficiency	Oscillation frequency
No cognitive disorder	3 (13 %)
With lung CD	15.(65%)
With moderate CD	4(17,4%)
With severe CD	1 (4,3%)

Patients were divided into groups depending on the experience of the disease. The average degree of cognitive disorder depending on the duration of the disease is shown in Table No. 2

Table number 2

HIV duration	MoCA test result
1 to 3 years	22,4±1,25
4-6 years	22,1±0,84
7-10 years old	20,6±1,21
10 years and more	22,5±1,32

The patient, regardless of the antiretroviral drug taken, was prescribed choline alfoscerate at a dose of 1000 mg intravenously for 10 days, after which treatment with the tablet form of choline alfoscerate at a dosage of 400 mg was continued for 6 months. Several repeated studies of cognitive status were conducted, the results of which are displayed in Table No. 3

Table number 3

	Before treatment	After 10 days	After 1 month	After 3 month	After 6 month
MoCA test result	21,6±0,8	22,8±0,84	22,9±0,82	23,1 ±0,8	23,8±0,71

When using the injectable form of the drug for ten days, a slight improvement was noted, after which the pace of improvement slowed down during the first three months of treatment. According to the results, it can be determined that only after long-term treatment for at least 6 months can be obtained a statistically significant improvement in the patient's cognitive status ($p<0,05$).

Table number 3

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Cognitive functions	Cognitive disorder rate before treatment	Cognitive disorder rate after treatment
1) time orientation	14,6±4,2	13,2±6,1
2) orientation in place	7,4±3,1	7,1±3,9
3) self orientation	0	0
4) involuntary memory	87,4±4,5	74,5±5,8
5) understanding of speech and complex logical - grammatical constructions	28,0±6,5	26,5±7,8
6) expressive speech	16,8±4,2	15,0±5,8
7) dynamic praxis	46,2± 6,8	35,4± 7,6
8) constructive praxis	53,6±6,3	38,3±8,6
9) reading	28,2±6,5	24,5±7,0
10) writing	35,3±6,8	30,7±7,4
11) concentration of attention	80,3±5,3	64,6±9,3

When developing cognitive status during treatment, you will notice that the main improvements affected involuntary memory, concentration, dynamic and constructive praxis to a greater extent than speech, reading and writing. For such cognitive functions as orientation in time, in place and in self, there was practically no improvement.

Conclusion

1. A study of the cognitive status of patients with HIV encephalopathy shows a predominance of mild cognitive disorder, in contrast to earlier studies, which may be associated with the use of highly active antiretroviral therapy.
2. The duration of the course of HIV directly affects the state of cognitive status, the worst result of which shows the experience of the disease from 7 to 10 years.
3. The results of a dynamic neuropsychological examination using the drug choline alfoscerate revealed significantly positive dynamics in the form of an increase in the level of cognitive status by an average of 2.2 points on the Montreal scale for assessing co-cognitive functions.

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