World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-31, February 2024
ISSN: 2749-3644

CASSIFICATION OF COGNITIVE AND PSYCHOEMOTIONAL CHANGES IN DISCIRCULATORY ENCEPHALOPATHY

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Article history:

Received: December 4th 2023
Accepted: January 4th 2024
Published: February 6th 2024

Abstract:

100 patients with DE stages I-III were examined to determine the characteristics of cognitive and emotional disorders in dyscirculatory encephalopathy, 70 women and 30 men (average age 62.4±14.9). The etiological basis for the development of DE in the examined patients was atherosclerosis (29.1%), arterial hypertension (22.2%), their combination (37.7%) and arterial hypotension (11%). At the first stage of DE, there is a discrepancy between subjective and objective assessments of cognitive functions, which indicates both the lability of mental functions, flickering symptoms characteristic of cerebral vascular disorders, and the presence of an asthenic symptom complex. Under the influence of age, attention and visual memory suffer more. According to the "Exclusion of excess" method, significant differences were also obtained, indicating that the decrease in semantic memory continues to increase with age.

Keywords: cerebrovascular disease, dyscirculatory encephalopathy, chronic cerebral ischemia

RELEVANCE. Vascular brain lesions are the most common cause of death in many countries of the world. Stroke ranks second in the structure of total mortality in Russia. More than 400 thousand cases of strokes are registered annually, with a mortality rate of up to 35%. The primary disability rate after a stroke is 3.2 per 10,000 people, and no more than 20% of those who previously worked return to work. People with disabilities due to cerebrovascular diseases account for 9.8% of the total contingent of people with disabilities among the population. Statistical data indicate that the increase in vascular diseases of the brain occurs due to an increase in the prevalence of chronic cerebral ischemia (CHEM).

In Uzbekistan, according to data from Majidov N.M. (2012), Gafurov B.G. (2017) and others, the number of patients suffering from chronic forms of CVD is about 650-700 thousand.

The problem of dyscirculatory encephalopathy, from the point of view of the etiological moment, clinical polymorphism is quite well sanctified. But it should be noted that there are differences in the course and clinical manifestation of CHEM in age and gender aspects, which in practice is not given enough attention.

A problematic issue is the unity in terminology in describing dyscirculatory encephalopathy itself and the pre-segment cognitive and emotional disorders that occur in stage II of the disease. There are no descriptions of the clinical features of these disorders, changes with the progression of dyscirculatory encephalopathy, and there is no description of their Dopplerographic and neuroimaging patterns. An important question is how long it is possible to talk about the formation of dementia

THE AIM OF THE STUDY: to establish the features of cognitive and emotional disorders in dyscirculatory encephalopathy.

MATERIALS AND METHODS OF RESEARCH. 100 patients with stage I-III DE were examined, 70 women and 30 men (average age 62.4±14.9), of whom up to 50 years (22.3%), up to 60 years (19.3%), up to 70 years (17.8%), up to 80 years (20.3%), over 80 years (20.5%). The examination was conducted on the basis of the neurological department of the regional multidisciplinary medical center of the city of Bukhara. The diagnosis of DE was established on the basis of the classification of E.V.Schmidt (1985), N.N.Yakhno, I.V.Damulin (1995). The criteria for selecting patients were: 1) The presence of DE I, II and III stages. 2) The absence of previous mental illness. 3) Absence of symptoms of exacerbation of somatic and mental diseases during the examination.

THE RESULTS OF THE STUDY. The etiological basis for the development of DE in the examined patients were atherosclerosis (29.1%), arterial hypertension (22.2%), their combination (37.7%) and arterial hypotension (11%). Stage I of DE is characterized by a

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Volume-31, February 2024
ISSN: 2749-3644

discrepancy between subjective and objective assessments of neurological status and cognitive functions. At the same time, the most common complaints in patients were complaints of headache (80%) and meteosensitivity (70%). The second most frequent complaints were dizziness and sleep disorders (52.5%), in third place complaints of memory loss (45%), fatigue, general weakness, heaviness in the head and decreased mood (35%). There were fewer complaints of decreased attention, staggering when walking, irritability (25%). Objective examination of patients in this group revealed mainly diffuse microsymptomatics in the form of attenuation of the pupil response to light and convergence, unstable horizontal nystagmus, asymmetry of deep reflexes without clear lateralization, unstable hand reflex Rossolimo. There were no deficient neurological syndromes in stage I of DE, and asthenic syndrome was detected in most patients (85%). Neuropsychological examination revealed that in the absolute majority of patients (90%), attention and long-term auditory memory were significantly below normal. During the examination of praxis and gnosis, no violations were detected, the overall score was within the normal range (24.62±0.79). In some patients, there was a slowdown in performing tests for constructive praxis, without errors. The average score for the NPI block was 31.64±3.4, which is significantly lower than normal ($p < 0.01$). The study of thinking in this group showed a significant difference from the norm ($p < 0.01$) according to the "Exclusion of excess" method (8.5 ± 0.46), and errors were rare in excluding an unnecessary word, but difficulties arose when choosing the name of a group of words, i.e. a categorical definition. Sometimes patients resorted to using words given in the enumeration of the vocabulary or to specific situational connections, which indicates a decrease in semantic memory.

Thus, at the first stage of DE, there is a discrepancy between subjective and objective assessments of cognitive functions, which indicates both the lability of mental functions, flickering symptoms characteristic of cerebral vascular disorders, and the presence of an asthenic symptom complex. Stage II was determined by patients with clear mild neurological syndromes and implicit cognitive decline or mild depressive and other affective disorder, detected only by special neuropsychological and psychological examination. In stage II DE (31 patients, average age 56.01±12.07), the subjective symptoms differed less from the objective ones. The most frequent complaint was still a headache complaint (77.9%). Dizziness was more common (73.2%) than in stage I ($p < 0.01$). In second place were complaints of sleep disorders (55.9%) and memory loss (52.8%). Complaints of weather sensitivity were less frequent (54.3%) than in stage I ($p < 0.01$). In third place, there was still a complaint of a decrease in mood (44.9%), but unlike stage I, this complaint was 10% more common and in half of this number (49.8%) it was objectively confirmed by the Hamilton depression scale and the Lusher test. The complaint of staggering when walking moved from fourth to third place (45.7%; $p < 0.01$), there was also often (44.9%) a complaint of heaviness in the head, especially after a night's sleep. A study of the neurological status in stage II DE showed that patients have a neurological deficit in the form of pyramidal syndrome (46.7%), which occurred mainly in the form of reflex pyramidal insufficiency, mild central paresis of facial muscles.

Atactic syndrome (36.2%) and cochleo-vestibular syndrome (27.5%) in the form of instability in the Romberg pose, staggering when walking, noise or ringing in the chest were in second place in frequency in patients with DE head and ears, hearing loss, nystagmus, poor transport tolerance, uncertainty during coordination-dynamic and static tests, etc. Pseudobulbar syndrome in the form of intermittent symptoms of oral automatism, dysarthria was much less common than other syndromes in 14.2% ($p<0.01$).

During the neuropsychological study, significant differences in many indicators between the I and II stages of DE were revealed. So, for example, at stage II, according to the NPI block, the average values were 26.5 ± 3.8, which is lower than at stage I DE ($p<0.001$). Patients with DE II A of the art. noticeably decreased attention (2.55 ± 0.93; $p<0.001$), patients took longer than their peers with DE I of the art. to find the numbers in the Schulte table, they needed to repeat the conditions of the task several times before they started to perform it, which indicated difficulty concentrating. Short-term visual memory decreased significantly ($p<0.001$) (3.3±1.17) compared to stage 1 DE (4.7±0.06). Short-term auditory memory also worsened in patients with grade II DE, although the differences from grade I DE are less pronounced ($p<0.01$). Long-term auditory memory practically did not differ in both groups, the results of the "Exclusion of excess" test also did not have significant differences in the groups, difficulties arose in patients with DE II A st., as with DE I st., when choosing the name of a group of words, i.e. categorical definition, which indicated a decrease in semantic memory, intellectual insufficiency, concreteness and rigidity of thinking. This was confirmed by studying the results of the "Essential signs" test, which revealed minor but significant differences ($p<0.01$), which suggests that with the aggravation of the DE stage, the predominance of a concrete situational style of thinking over an abstract logical one increases. Dyspractic disorders identified in patients with DE II A consisted in insufficiently smooth execution of movements during the study of dynamic

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Available Online at: https://www.scholarexpress.net
Volume-31, February 2024
ISSN: 2749-3644

praxis, difficulties in switching when changing tasks, but the visual-spatial and kinesthetic basis of movements was preserved. The overall score for DE II A was 23.84±2.15, i.e. it was on the border between the norm and mild violations.

Stage II B of DE was established in patients with moderate or severe neurological syndrome (or several mild to moderate degrees) and in the case of obvious (moderate or severe) cognitive, emotional and behavioral disorders with maladaptation. At this stage, emotional and cognitive impairments were not indicated not only the patients themselves, but also the people around them. In stage II DE B (34 patients, average age 70.81±13.32), the subjective symptoms differed from the previous stage in the frequency of occurrence of the main complaints. Thus, the complaint of memory loss moved to the first place (61.9%; $p<0.01$). Complaints of headache (53.2%) and dizziness (51.8%) moved to the background ($p <0.01$). The complaint of staggering and unsteadiness when walking moved from third to second place (49.6%). Statistically significantly more often ($p <0.01$) patients are concerned about decreased vision (43.2%), hearing (38.9%), weakness in the extremities (33%). And meteosensitivity (40.3%), fatigue, general weakness (29.5%), heaviness in the head (10.8%) are, on the contrary, significantly less common than in stage II DE. During an objective examination in patients with stage II B, pyramidal syndrome was still in the first place in frequency (51.8%), but pseudobulbar syndrome was statistically significantly more common (40.3%; $p<0.01$). Cochleo-vestibular (29.9%) and atactic (23%) syndromes moved to the third place in frequency of occurrence. Attention was drawn to the statistically significantly more frequent ($p<0.01$) detection of extrapyramidal (11.5%) and convulsive (4.3%) syndromes at this stage. With the progression of DE, not only the frequency of occurrence of various syndromes increases, but also their severity. Neurological symptoms in patients with stage II DE become clearer and more pronounced compared to the initial stages of the disease. A feature of the neurological defect in late-stage DE is the presence of several syndromes in one patient, and this "complexity" may be unequal, i.e. the severity of the syndromes is different. There is no clear dominance of any one syndrome in patients, with the exception of post-stroke patients. The intensity of the severity of neurological symptoms may vary ("flicker" of symptoms). The age of all patients with DE II art. was markedly different in the group with DE II A art. (average age - 56.01 ±12.07) there were only 4% of patients over 70 years old, and in the group with DE II B (average age - 70.81± 13.32) – 8% of patients of the older age category. In order to exclude age-related effects on cognitive performance, patients with stages II A and II B of DE of the same age (average age 57±6.6 years) were selected and two groups were created (Table 1). According to the Student's criterion, these groups did not have significant differences in age, and according to all major neuropsychological methods, the indicators in patients with DE II B art . significantly lower than in case of DE II A, which confirms the correctness of the differentiation of the second stage into A and B and the need for neuropsychological diagnostics to accurately determine the stage of the disease.

Table 1.
Comparative assessment of neuropsychological indicators of patients with DE II A and II B stages

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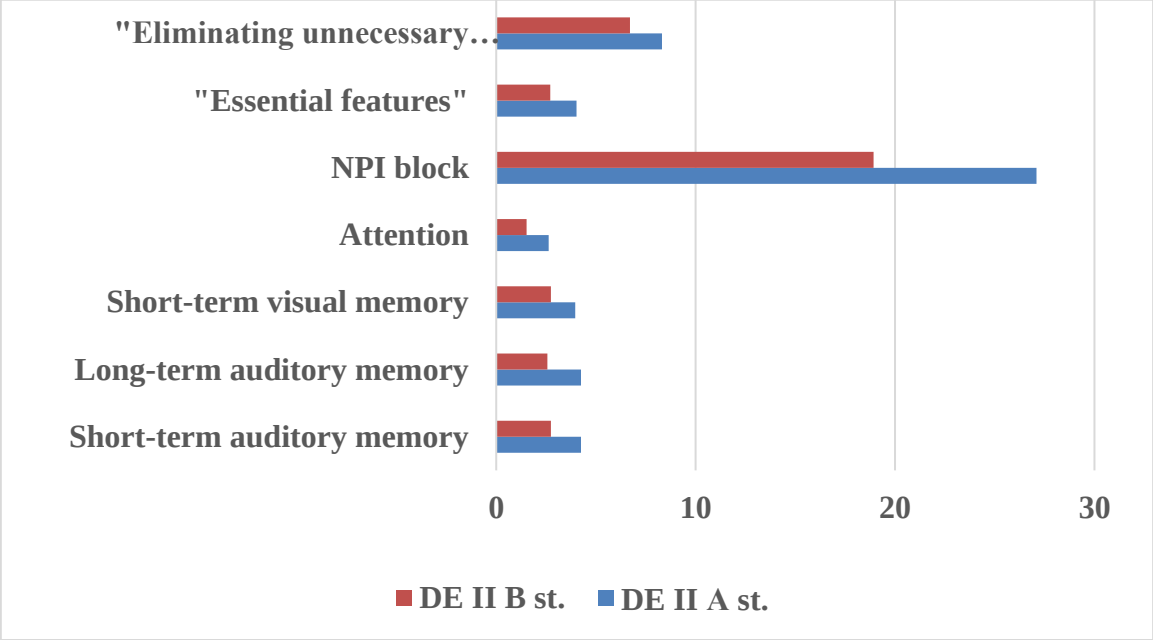

Thinking in stage II DE is rigid and unnecessarily thorough. It is sometimes difficult for patients to identify the main, essential and they dwell on small things for a long time. This was clearly manifested in the results of the "Essential signs" technique, for example, when choosing two words out of five that are most closely related to the word "love", patients often chose "date, wedding", and the doctor's tips only led to an even more detailed description of these events, often using the example of their own lives. In the DE II B stage, the overall score of praxis and gnosis (18.33±2.68) was statistically significantly lower ($p<0.001$) than in the DE PA stage, with significant differences obtained in all samples, and the greatest in the study of constructive apraxia. To identify the effect of age on cognitive decline, a random sample of 30 patients with stage II DE B under 70 years of age (average age 58.7±7.28) and over 70 years of age (average age 79.9±5.3) was conducted. A significant difference was found between these groups ($p<0.01$) according to the NPI block, especially in terms of visual memory and attention (Table 2). Thus, it can be concluded that attention and visual memory suffer more under the influence of age. According to the "Exclusion of excess" method, significant differences were also obtained, indicating that the decrease in semantic memory continues to increase with age.

Stage III DE was established in patients with a combination of several pronounced neurological syndromes, pronounced cognitive and emotional disorders and vascular dementia. Stage III of DE (23 patients, 12 of them with vascular dementia syndrome, average age 69.9±10.4) is characterized by an increase in the frequency of occurrence compared to the previous stage ($p<0.01$) of complaints of memory loss (90.4%) and attention (87.2%), decreased vision (86.2%), disorders gait (63.8%) and weakness in the extremities (53.2%) and a decrease in the frequency of complaints of headaches (31.9%) and dizziness (26.6%), sleep disorders (38.3%), weather sensitivity (11.7%) ($p<0.01$). In an objective examination of patients with stage III DE, pseudobulbar syndrome was in the first place (62.8%), which is statistically significantly more common than in stage II DE ($p<0.01$). Pyramid syndrome was the second most common in patients with DE (46.8%). The frequency of cochleo vestibular (31.9%) and atactic (23.4%) and extrapyramidal (13.8%) syndromes also tended to increase. Pseudobulbar syndrome appeared in the form of pronounced reflexes of oral automatism, dysarthria, dysphagia, violent laughter and crying, pyramidal syndrome was often represented by insufficiency of innervation of cranial nerves, paresis and hemitype plegias, as a result of strokes. Patients often had astasia-abasia, decreased or no control over the pelvic organs (62.8%). Neuropsychological examination of patients with stage III DE showed a further decrease in basic cognitive indicators. The average values of the NPI block are 14±3.3, which is statistically significantly lower ($p<0.01$) than the indicators of patients with stage II DE. Cognitive decline in stage III DE was confirmed by a lower assessment of praxis and gnosis (14.67±3.61) compared with stage II DE ($p<0.01$) with a deterioration in indicators of all types of praxis and

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Volume-31, February 2024
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gnosis. The greatest violations were found in the study of motor, constructive praxis, and visual gnosis.

CONCLUSION. Cognitive decline in dyscirculatory encephalopathy progresses from deterioration of attention, modal-nonspecific forms of memory, pace of thinking at stage I of the disease to a decrease in all types of memory, attention, constructive apraxia, visual agnosia, anosognosia, disorders of planning and regulation of activity at stage III of the disease in vascular dementia. An increase in age has an effect on a decrease in attention, visual and semantic memory. Based on the dominant clinical disorders, variants of cognitive and emotional disorders in dyscirculatory encephalopathy are identified, which are most clearly manifested at stage II: dysmnestic, depressive, paranoid and emotionally labile, which are characterized by neuropsychological and neurological signs. In each of the variants of cognitive and emotional disorders, individual neurological syndromes are determined with a similar frequency: pyramidal, pseudobulbar, atactic, cochleo-vestibular, dissomnic and cephalgic. The greatest association of focal neurological disorders and psychopathological disorders was found in vascular dementia.

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