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DETERMINATION OF EARLY DIAGNOSTIC AND NEUROLOGICAL SIGNS IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

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ABSTRACT

In recent years, there has been an increase in autoimmune diseases, where systemic lupus erythematosus occupies a special place; the possibilities of modern diagnostics, awareness of the population, factors of environmental trouble (Priaralie), the consequences of COVID 19, became a reflection on the nature of the disease and its complications; the study of neurological lesions of the central and peripheral nervous system against the background of the underlying disease of SLE made it possible to identify which syndromes manifest themselves more often, in which cases the progression of the pathological process occurs with a subsequent unfavorable prognosis.

KEYWORDS: clinical and neurological examination, systemic lupus erythematosus, S100ß protein, MOCA scale, EEG, ultrasound.

ОПРЕДЕЛЕНИЕ РАННИХ ДИАГНОСТИКО-НЕВРОЛОГИЧЕСКИХ ПРИЗНАКОВ У БОЛЬНЫХ С СИСТЕМНОЙ КРАСНОЙ ВОЛЧАНКОЙ

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АННОТАЦИЯ

Последние годы отмечается рост аутоиммунных заболеваний, где особое место занимает системная красная волчанка; возможности современной диагностики, осведомлённость населения, факторы экологического неблагополучия (Приаралья), последствия COVID 19, стало отражением на характере заболевания и его осложнений; изучение неврологических поражений центральной и периферической нервной системы на фоне основного заболевания СКВ ,позволили выявить какие синдромы проявляются более чаще, в каких случаях наступает прогрессирование патологического процесса с последующим неблагоприятным прогнозом .

Ключевые слова: клинико-неврологический осмотр, системная красная волчанка, белок S100ß, шкала МОСА, ЭЭГ, УЗДГ.

The disease is systemic lupus erythematosus - in 1822, described by a doctor from France, Biett, the name was acquired due to a special reddish skin lesion. Only 100 years later, neurologists became interested in the aspects of disorders of the central and peripheral nervous system in the disease of systemic lupus erythematosus (SLE) (1, 2, 5). For all these years, the etiology of the disease has been tirelessly studied, and today only the multifactorial concept remains acceptable. According to foreign authors, disorders of the nervous system are in a fairly wide range from 20 to 80% of cases, and the same wide variety of symptoms of a neurological disorder (2, 3, 6).

In most cases, the pathogenesis of damage to the nervous system is considered, as a result of damage to the vessels of the brain, eventually leading to ischemia or hemorrhage in both acute and chronic conditions (4, 7, 8). A consequence of vasculopathy does not exclude the development of deliemianization in the hemispheres (9, 10, 11). Convulsive seizures, according to a literature review, mainly develop in patients with SLE at the stage of decompensation. For the chronic period, with a long duration of the disease, typical neurological disorders such as polyneuropathy, myelopathy (3, 6, 12). The most striking and most studied is psycho-neurological changes, in the form of cognitive and depressive shifts. As early as the beginning of the 19th century, a description of SLE, the initial manifestation was unreasonable anxiety, schizophreno-like syndromes (M.Kaposi, W.Oslez, 1900). Thus, changes in the nervous system in SLE are quite variable and diverse in their manifestations, taking into account the fact that the SLE disease itself has increased the growth rate in recent years, interest in this problem is relevant and requires study in the direction of finding new methods of diagnosis, optimization of treatment and preventive measures. , severe complications.

PURPOSE OF THE STUDY

To study clinical and neurological signs of impairment in patients with SLE, to develop ways for early diagnosis of neurological disorders.

MATERIALS AND RESEARCH METHODS

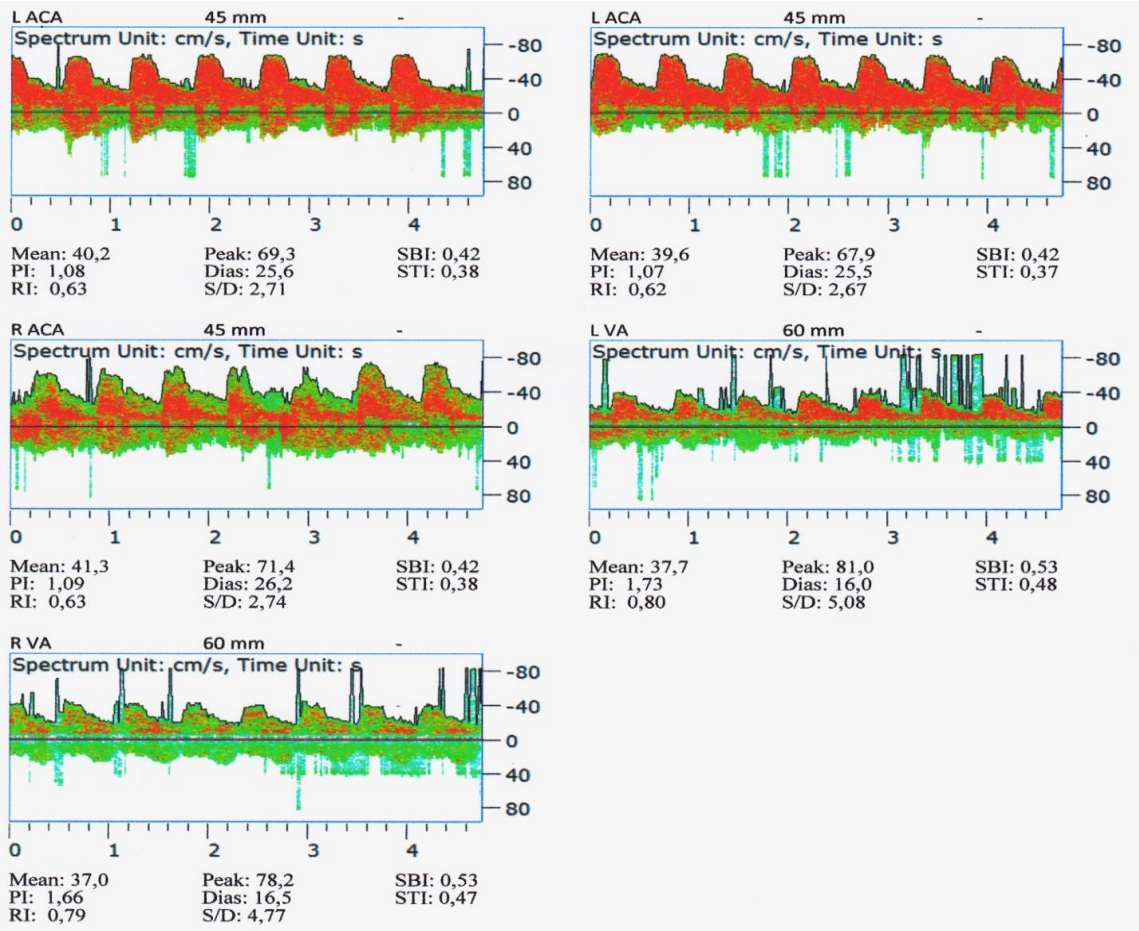
Patients for the period 2020-2022 who received inpatient treatment at the Department of Rheumatology of the 1st Clinic of the Samarsk State University, a total of 37 people, of which only 2 were men, were subject to examination. SLE was diagnosed according to the classification proposed by the American College of Rheumatology (1999). The age at the time of examination and hospitalization was 35±10 years, the duration of the disease was from 1 to 6 years - 83%. An important component of the examination of patients, the definition of clinical and neurological disorders (syndromes), in accordance with this, the exclusion criteria were patients with SLE who had severe somatic complications, in the form of ulcerative lesions, respiratory failure due to pneumosclerosis, pericarditis; age over 45 years, renal failure (patients receiving hemodialysis). Of the generally accepted diagnostic methods, blood biochemistry (expanded) was determined for patients, instrumental methods included EEG, ultrasound; neuroimaging, MRI studies, and angiography of cerebral vessels; neurofunctional MOCA scales (explored the level of cognition). Specific studies, the determination of the S-100ß protein, which is a reflection of the degree of brain damage, and in parallel with monitoring,

makes it possible to determine the prognosis of the course of the disease. Statistical data were processed on an individual computer, according to standard Student's criteria.

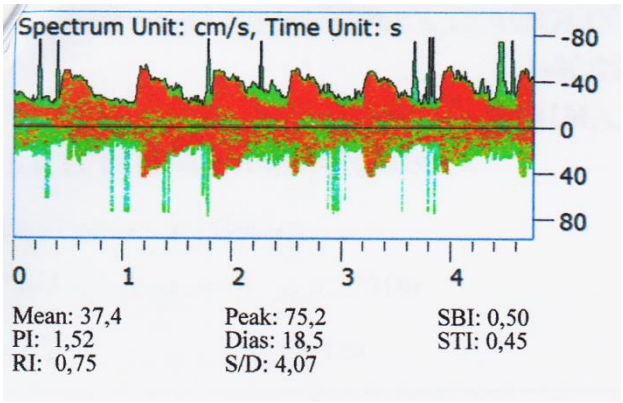
RESEARCH RESULT

Neurological manifestations in patients with SLE depend on the duration of the disease, the level of localization of the lesion, and the severity of the underlying disease. In this work, out of the total number of patients with SLE, a selection of patients with certain signs of neurological syndromes was made, respectively, from more than 100 patients with SLE in the Samarkand region, 37 patients (2 of which were men) were identified. Based on the classification of the disease, the course of the disease was determined (examination by rheumatologists), 80% of which had a subacute course, 20% chronic. Preliminary diagnosis confirmed the diagnosis, clinically, laboratory. The task of neurologists included counseling patients, determining and identifying neurological focal symptoms, and referral for additional research. Written consent for the study was taken from each patient.

Almost all patients complained of headache (71%), of different localization and character of cephalgic pain. For the most part, according to patients, headache was observed in the morning, sometimes accompanied by dizziness in 33%. Headache was relieved with NSAIDs; in several patients, only vomiting brought relief. A deep and careful objective examination revealed meager signs of damage to the nervous system, in the form of a slight flattening of the nasolabial fold in 33.5%, deviation of the tongue in 15%, a difference in tendon reflexes of the left and right sides in 20%. Gross impairment of coordination was not found, only slight instability in the Romberg position in 26%, overshooting during the finger-nose test in 7 cases; on the part of sensitive changes, a decrease in pain and tactile sensitivity, more in the distal sections (asymmetric) in 13.4%. All signs have a logical continuation, patients with SLE are prone to cerebral ischemia, under the influence of a vascular disorder factor (coagulopathy, vasculopathy). According to the literature data, patients with SLE with a disease history of more than 5 years (up to 10 years) have a risk of cerebral vascular accidents (l), respectively, our assumptions are confirmed by earlier studies. In addition, blood pressure control among patients on average showed relatively high numbers from 150/90 to 180/100 in 65% of cases; As for the studies of ultrasound scanning of cardiological potentials, regurgitation in the mitral valve (1, 2 degrees) is recorded in almost 60%, the severity of cardiac disorders again depended on the level of activity of the underlying disease, blood pressure and cardiochanges are a risk factor for chronic (subacute) cerebrovascular accident. If headache is considered the most striking manifestation of neurological signs, then in second place is asthenia in the form of fatigue and weakness (78.2%), anxiety and depressive disorders (54.8%); non-systemic dizziness occurs quite often, on average 60%. Horizontal nystagmus occurred with a frequency of 56.6%; tinnitus (aggravated in a horizontal position) in 71.7%; on the part of the autonomic nervous system, pronounced signs of dermographism in 80.1%. Cognitive disorders occur in this disease, but not in a significant percentage, according to patients, it is periodically difficult to orient in space, they do not remember current events, on average, of the examined patients, the signs were manifested against the background of the activity of the underlying disease in 11.5%. Taking into account the task set, patients underwent transcranial Doppler ultrasound according to standard indicators (Fig. 1)

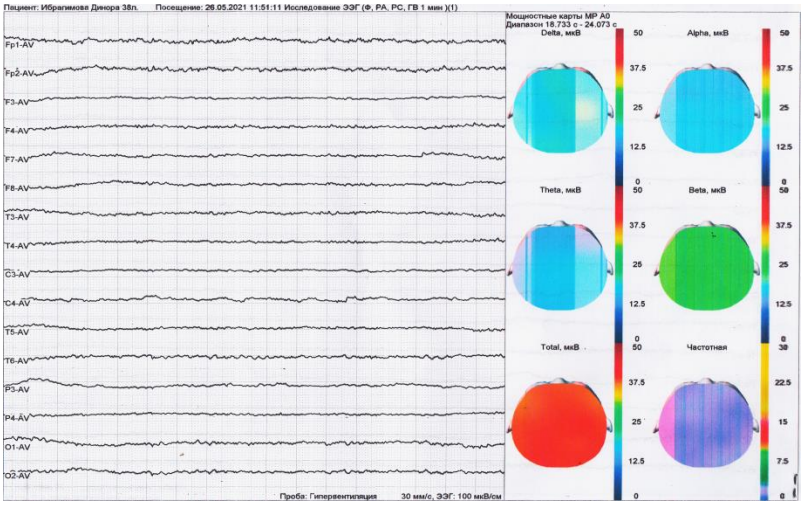


Rice. 1. Patient V., 33 years old.



Rice. 2. Patient A., 35 years old

As can be seen in the figures, the blood flow velocity is linear along the left common carotid artery 87.0±17.2 cm/s; on the right 79.6±8.0 cm/s; the data confirm the assumption of a violation in the central hemodynamics in patients with SLE, indicate signs of chronic ischemization in the brain, such as a decrease in volumetric blood flow. Analysis of the results according to electroencephalography revealed cerebral diffuse changes in the cerebral cortex in 52.2% of cases, slow-wave activity was determined. An interesting fact was the determination of paroxysmal activity (in the anamnesis, no seizures were observed in patients taken for the study), in 19.9% on average (Fig. 3).



Rice. 3. Patient A., 35 years old

Neuroimaging parameters showed intracranial hypertension (enlargement of the gastric space) in almost all patients, signs of brain atrophy in 69.9%, and leukoryosis in 56.3%.Thus, the presented data of examination of patients, clinical, instrumental, neuroimaging indicate the predominant changes in the central nervous system. The most significant cerebrovascular pathology was characteristic of patients at the chronic stage of the disease.Against the background of an increase in the disease (experience of the disease), intensification of vascular conflicts, there is a progression of chronic cerebrovascular accident, with all the characteristic signs: a decrease in cognitive function, asthenic syndrome, atactic, cephalgic, vertebrobasilar insufficiency, etc.Modern researchers use, in addition to the available methods of instrumental diagnostics that are included in the gold standard, biochemical markers that help to recognize and predict diseases at an early stage. One of these, often used to determine damage to the nervous system (tissue), is the S-100ß protein. The literature sources present evidence factors for the involvement of the S-100ß protein in the disease process, where an increase in the protein level clearly indicates a violation for the presence of damage to the brain structure, since the concentration of S-100ß initially exceeds the level in both the central and peripheral nervous systems compared to with a concentration in other tissues (in the brain, the S-100ß protein is 10/4 times higher than in other organs, Sosnovsky E.A., 2014). In all patients with SLE disease, the level of S-100ß protein was determined in the blood serum. So the concentration of protein in the blood in patients in the subacute period was at the upper limits of the normal level (that is, the increase took place, but insignificant), which corresponded to relatively mild disorders, according to neuroimaging, in the brain. In 31.5% of patients, S-100ß was equal to 0.125 μg/l, and on MRI in these patients, one of the lesions was ventricular dilatation. A larger percentage was in the chronic degree of SLE disease (disease duration ≥10 years), here the S-100ß protein level is high, exceeding the normal range from 0.153 μg/l to 1.7 μg/l, on average 1.5 μg/l , where neuroimaging changes were in the form of multiple lesions (cerebral atrophy, leukoresis, subarachnoid enlargement, etc.). Thus, the study of the S-100ß protein concentration in patients with SLE can serve as a biochemical marker for early detection of disorders of the nervous system, and with a more thorough set of optimal treatment, an assessment factor for the effectiveness of the selected treatment and a prognostic matrix for the risk of worsening the condition of the nervous system (e.g. acute cerebrovascular accident).

The final step in the study was screening for the level of cognitive impairment. The result was evaluated on the basis of the MOCA test (having a range from 0 to 30 points). In cases of testing, most violations were noted when performing a test for memorizing 5 words (nouns), testing short-term memory and on the part of performing a task for phonetic fluency, in the case of sequential subtraction, patients affected more time than expected, thereby reducing the amount of the total score when testing. In 35% of cases, patients scored 26±1 points, which corresponds to the lower limits of the norm, in other cases, the MOCA test was assessed as 22±1 points, which corresponds to moderate cognitive impairment. These indicators are a confirmation of the alleged chronic cerebrovascular accident in patients with SLE, in the aggregate of previously conducted clinical, laboratory, and instrumental studies.

CONCLUSION

1. In patients with SLE, there is a violation of the nervous system, both central and peripheral, but the percentage of chronic ischemia of the brain prevails, approximately 3: 1, the stage is promoted by vascular insufficiency and, as a result, cerebrovascular pathology, which can be seen from the indicators of heart failure, structure blood and circulating blood volume
2.Evaluative analysis of clinical syndromes, indicators of electroencephalographic, neuroimaging, laboratory data (S-100ß protein) and testing of cognitive changes confirmed the assumption of chronic cerebrovascular accident in patients with SLE and the need to correct or optimize treatment to prevent acute catastrophes in the brain
3. Of the total number of examined patients, women were identified (which corresponds to the literature data), respectively, there is a need to study neurological disorders in the gender ratio, taking into account the hormonal characteristics and psycho-neurological aspects of the female body, in subsequent studies.atory, and instrumental studies.

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