ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 6 | Issue: 10 | October 2020 || Journal DOI: 10.36713/epra2013 || SJIF Impact Factor: 7.032 ||ISI Value: 1.188

ANTIPHOSPHOLIPID SYNDROME AND THE RELATIONSHIP WITH CEREBROVASCULAR DISEASE

[1]O.Y. Bustanov, [2]Y.N. Madjidova, [3]N.A. Nasirdinova, [4]O.B. Kuchkarova, [5]M.A. Mamatov
[1,2,3,4,5]Andijan State Medical Institute

Article DOI: https://doi.org/10.36713/epra4313

ABSTRACT

Antiphospholipid syndrome is accompanied by a number of organ and system lesions: one of them is damage to the nervous system, namely cerebrovascular diseases. In this work, a study of the lesions of the nervous system against the background of rheumatological pathology and signs of antiphospholipid syndrome has been carried out. A relationship has been found between the duration of the rheumatic process and the occurrence of organic brain damage.

KEY WORDS: ***rheumatic diseases, antiphospholipid syndrome, cerebrovascular pathology.***

RELEVANCE

The clinical spectrum of ischemic brain lesions in antiphospholipid syndrome is extensive and includes manifestations from transient ischemic attacks to focal lesions such as amaurosis, extensive cerebral infarction, ataxia and dementia [2]. Most often, vascular lesion in antiphospholipid syndrome affects the middle cerebral artery basin [3].

There is a tendency to recurrent stroke with antiphospholipid syndrome, it is often preceded by transient ischemic attacks. Rapid regression of symptoms is characteristic. Some cerebral circulatory disorders are asymptomatic and are incidentally found on magnetic resonance imaging.

Recurrent strokes lead to the development of multi-infarction dementia [1, 2, 5]. It is the propensity for insult strokes (arterial) that distinguishes and differentiates antiphospholipid syndrome from other less dangerous hypercoagulable syndromes, such as factor V Leiden mutation [6].

In this regard, the goal has been set for us - to consider the most frequent cerebrovascular lesions in antiphospholipid syndrome against the background of rheumatological diseases and ways of their correction.

MATERIAL AND RESEARCH METHODS

This work presents the results of examination of 256 patients with various forms of rheumatic diseases (n = 256): systemic lupus erythematosus - 35 people, systemic scleroderma - 13 people, systemic vasculitis - 1 person, rheumatoid arthritis - 205 people, Raynaud's syndrome - 1 person, rheumatic heart disease - 1 person. All patients has undergone the examination and treatment in the clinic of the Andijan State Medical Institute at the Department of Propedeutics of Internal Diseases and the Department of Nervous Diseases, followed by many years of dispensary observation.

The average age of patients is 39 ± 12.7 years and is the highest in patients with rheumatoid arthritis (48.5 ± 7.8 years), the smallest in patients with systemic lupus erythematosus (33.7 ± 11.3 years).

The most numerous among patients has been the group with a disease duration from 1 to 5 years (in the group as a whole - 41.2%), it has been especially numerous among patients with systemic lupus erythematosus (48.6%) and systemic scleroderma (53.8 %). The highest proportion of long-term illnesses has been among patients with rheumatoid arthritis (72.2%).

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 6 | Issue: 10 | October 2020 || Journal DOI: 10.36713/epra2013 || SJIF Impact Factor: 7.032 ||ISI Value: 1.188

Duration of rheumatic disease at the time of examination (n = 256)

Nosological Form	Up to 1 year	From 1 year to 5 years	From 6 years to 10 years	More than 10 years
Systemic lupus erythematosus	7 (20%)	17 (48,6%)	5(14,2%)	6 (17,1%)
systemic scleroderma	3 (23,1%)	7 (53,8%)	2 (15,3%)	1 (7,7)
rheumatoid arthritis	17 (8,2%)	148 (72,2%)	25 (12,2%)	15 (7,3%)
systemic vasculitis	1 (100%)			
Raynaud's syndrome	1 (100%)			
Rheumatism of heart		1 (100%)		

All patients have undergone studies: "USDG" of the great vessels, MRI of the brain and immunological studies to determine the presence of antiphospholipid syndrome. With the help of "UZTKDG" according to the characteristics of blood flow in the main vessels of the brain, non-invasive diagnostics of the localization and degree of the stenosing process, vascular tortuosity, shunting lesions of the vascular system, angiospasm is possible. MRI of the brain has been performed to identify organic brain lesions in the presence of rheumatic diseases.

RESULTS AND DISCUSSION

Signs of damage to the nervous system have been identified in all patients examined by us and have been represented by damage to the peripheral and central nervous system.

Sign	n	%
Cerebrovascular pathology: - initial manifestations of cerebrovascular accident	63	30,5
- Chronic ischemia of the brain - 1 st.	47	22,9
- Chronic ischemia of the brain - P st.	75	36,5
- transient cerebrovascular accident	12	5,8
- insult strokes	12	5,8
Cephalalgia	98	47,8
Neurasthenia (often of the hypersthenic type)	114	55,6
Vestibular disorders (vertigo, tinnitus)	58	28,2
Basal-meningeal syndrome	17	8,3
Cervicalgia	76	37,1
Sleep disturbances	44	21,5
Vegetative disorders	65	31,7
Mnestic disorders	51	24,9

Strokes in 11 cases have been ischemic in nature and developed in the “MCA” basin, in 1 case “ACVA” has been represented by subarachnoidhemorrhage.

Re-stroke has been observed in only 1 patient.

Transcranial Doppler ultrasound has been performed in 39 patients with rheumatoid arthritis. According to “USTKDG”, the linear blood flow velocity according to “POSA” was 74.4 ± 42.2 cm / s in patients with systemic vasculitis, and according to “LOSA” - 66.3 ± 41.7 cm / s; according to "PVSA" - 58.3 ± 9.9 cm / s, according to "JIBCA" - 60.8 ± 9.3 cm / s and have been significantly ($p < 0.01$) lower than in the comparison group (81, 3 ± 4.3 cm / s and 82.3 ± 8.1 cm / s, respectively); by "PSMA" - 80.4 ± 29.2 cm / s, "JICMA" - 67.6 ± 15.8 cm / s and were higher than in the comparison group (44.3 ± 21.1 cm / s and "LSMA" - 53.2 ± 22.5 cm / s); according to “PPA” - 31.1 ± 15.6 cm / s, according to “LPA” - 29.6 ± 9.1 cm / s were significantly ($p < 0.01$) than in the comparison group (53.2 ± 14.8 cm / s and "LPA" - 55.4 ± 18.7 cm / s). Patients with rheumatoid arthritis have had higher “LBFV” values for “SMA” and lower values for “ICA” and “OSA”. The revealed changes in blood flow have showed that in the group of patients with rheumatoid arthritis the extracerebral vessels most often change towards angiospastic reactions.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 6 | Issue: 10 | October 2020 || Journal DOI: 10.36713/epra2013 || SJIF Impact Factor: 7.032 ||ISI Value: 1.188

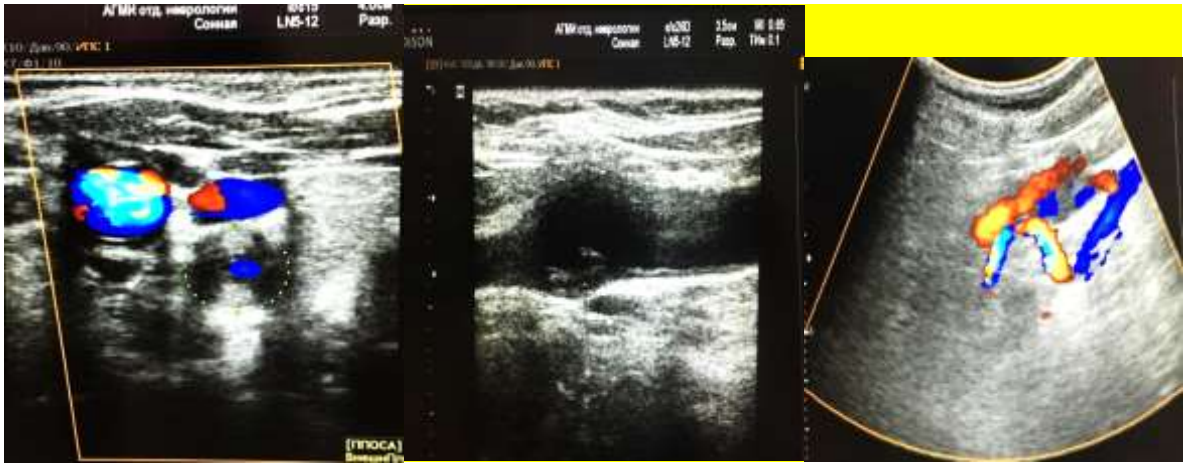

Figure 1 "USTKDG" on rheumatic disease

The study of structural disorders (MRI of the brain) also has revealed the following tendency - an increase in the duration of the course of pathology in patients with rheumatic diseases leads to an increase in signs of external and internal hydrocephalus, origins in the subcortical ganglia. The defeat of the cortex often develops in periods up to 1 year from the onset of the disease and more than 10 years from it. Periventricular origins were formed more often in patients in the first year after the clinical manifestation of the disease and within 6-10 years from the onset. In the group with systemic lupus erythematosus and systemic scleroderma, thickening of the meninges was observed with an increase in the duration of the disease. In patients with systemic vasculitis, with the course of the disease, the incidence of a decrease in the density of the white matter of the brain increased the number of periventricular origins and thickening of the meninges decreased.

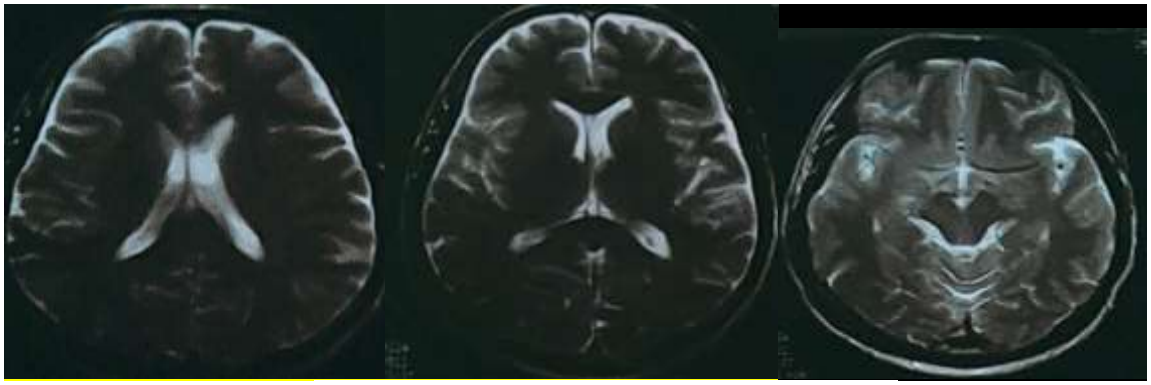

Figure 2. MRI of the brain in rheumatic diseases

Brain MRI in rheumatoid arthritis

Sign	Number of cases	
	N	%
External hydrocephalus	24	46,2
- easily expressed	8	33,3
- moderately expressed	12	50
- expressed	4	16,7
Internal hydrocephalus	21	40,4
- easily expressed	5	23,8
- moderately expressed	13	61,9
- expressed	3	14,3
Subcortical origins	7	13,5
- single	4	57,1
- multiple	3	42,9
Cortical origins	8	15,4
- single	4	50

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 6 | Issue: 10 | October 2020 || Journal DOI: 10.36713/epra2013 || SJIF Impact Factor: 7.032 ||ISI Value: 1.188

- multiple	4	50
Periventricular origins	10	19,2
- up to 5 mm	4	40
- from 5 to 10 mm	6	60

For the period the course of the study, in 253 patients with various forms of rheumatic diseases, the dynamics of the development of clinical neurological symptoms, structural changes in the brain and lesions of cerebral vessels, depending on the duration of the process, have been determined.

The patients have been examined at different times from the clinical onset of the disease, as they have been referred for a consultation with a neurologist. All patients have gone a study of lupus anticoagulant and antibodies to cardiolipin to detect antiphospholipid syndrome. “VA” has been studied in 26 patients with systemic lupus erythematosus and rheumatoid arthritis: among them, in 5 patients (31%) - “VA” during repeated studies ranged from positive to negative values, in 6 patients (37%) - “VA” has been persistently positive.

Antiphospholipid antibodies are a heterogeneous group of antibodies that react with phospholipid-linked cofactor proteins. The interaction of antiphospholipid antibodies with these proteins on the endothelial or platelet membrane or with coagulation proteins of blood serum creates a hypercoagulable state. It underlies the main clinical manifestation of antiphospholipid syndrome - thrombosis, including cerebral arteries, which leads to ischemic cerebrovascular accidents and other neurological manifestations (3,6). The etiology of the vast majority of primary systemic vasculitis is little known. Normally, the components of the vascular wall are resistant to the penetration of microorganisms. Nevertheless, in certain situations, infection of the vessel from nearby tissues or the bloodstream can be observed, which is accompanied by immunologically mediated or toxic damage to the endothelium and / or other structures of the vascular wall. It is assumed that many infectious agents can be causal (or trigger) factors that initiate inflammation of blood vessels of various sizes.

The identification of the above indicators in patients with systemic lupus erythematosus and rheumatic diseases once again confirm the connection of neurological pathology with immunological damage to blood vessels in rheumatological processes, and, as a consequence, the development of hypercoagulable processes in the vessels.

Summing up, we can say that the longer the duration of the rheumatological process, the more pronounced the neurological deficit: according to the research data, a progressive increase in the symptoms of chronic cerebral ischemia has been revealed in the form of an increase in mnestic disorders, dizziness, headache, and sleep disturbances. In the first years of the disease (2-5 years from clinical manifestation) and its long-term periods (more than 10 years), transient cerebrovascular accident and strokes were more common. Thus, the decrease over time in the frequency of unexpressed cerebrovascular disorders in the form of initial manifestations of cerebrovascular accident indicates that the pathological process in the vascular wall is indirectly growing and, accordingly, the above-described disorders are progressing.

CONCLUSIONS

- Cerebrovascular pathology is obligatory in rheumatic diseases, which mainly affect arterioles and capillaries, and in addition, in diseases affecting arteries of small and medium caliber or arteries of medium and large caliber.
- In our study, with rheumatic diseases, such neurological disorders as: headaches (77.5%), vestibular disorders (64.3%), neurasthenia (69.3%), sleep disorders (52.6%), basal-meningeal (33.8%) syndromes, memory loss (39.5%).
- The duration of the rheumatic process has a negative effect on the vessels of the brain and, accordingly, aggravate cerebrovascular disorders, which are manifested by already chronic cerebral ischemia of stage II and III and insult strokes.
- Gross changes in laboratory parameters - increases in “CRP”, “ESR”, antibodies to cardiolipins, “VA” - as well as the progression of structural changes on the MRI in the form of a “fresh” focal lesion of predominantly periventricular localization in patients with rheumatic disease with cerebrovascular pathology requires a change in approach to ongoing therapy.

REFERENCES

1. *Abrosimova A.A., Sokolov M.A., Poletaev A.B. and co-authors. Natural neurotropic autoantibodies in sera of patients with ischemic insult stroke, epilepsy, and Parkinson's disease. Neuroimmunology 2003; 2: pages 9-10.*
2. *Alekberova Z.S., Reshetnyak T.M., Rodenska-Lopovok S.G. and etc. Vasculopathy in patients with systemic lupus erythematosus with antiphospholipid syndrome. Archive 1995; 5: pages 41- 44.*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 6 | Issue: 10 | October 2020 || Journal DOI: 10.36713/epra2013 || SJIF Impact Factor: 7.032 ||ISI Value: 1.188

3. *Kalashnikova L.A. Brain Ischemia and antibodies to phospholipids. Supplement to the journal Neurologists and Psychiatry. S.S. Korsakova "Insult Stroke" 2003; 9: page 131.*
4. *Kalashnikova L.A. Neurology of antiphospholipid syndrome. - M .: Medicine, 2003 - page 256.*
5. *Nasonov E.L. Antiphospholipid syndrome. - M .: Litterra, 2004. - page 440.*
6. *V.A. Kutashov, A.V. Chernov, O.V. Ulyanova, L.A. Kutashova Neurological manifestations in patients with antiphospholipid syndrome: Educational method. A guide for neurologists, therapists, general practitioners, clinical residents and interns. - Voronezh: 2015. - page 90.*
7. *Ulyanova O.V. Antiphospholipid syndrome in neurology // Materials of the scientific-practical conference of neurologists of the Central Federal District of the Russian Federation, dedicated to the 125th anniversary of the birth of N.M. Itsenko "Actual problems of neurology". - Voronezh: 2015. - pages 304 - 310.*
8. *Ulyanova O.V. Symptomatic epilepsy as one of the manifestations of antiphospholipid syndrome // Scientific Medical Bulletin of the Central Black Earth Region. - 2015. - No. 59. - pages 134 - 138.*
9. *Reshetnyak T.M. Antiphospholipid syndrome: diagnosis and principles of therapy. Consilium medicum 2002; (4): pages 408-415.*
10. *Reshetnyak T.M. Antiphospholipid Syndrome: Current State and Future Challenges. Scientific and practical rheumatology 2013; 51 (1): pages 11-14.*