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ANGIOPATHIES IN SYSTEMIC RHEUMATIC DISEASES

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Annotation. Systemic autoimmune rheumatic diseases are characterized by high mortality in all regions of the globe, and the number of such patients is growing everywhere. Vascular damage (angiopathy, vasopathy, vasculopathy) is one of the main manifestations of systemic lupus erythematosus (SLE), systemic scleroderma (SSD), rheumatoid arthritis (RA) and ankylosing spondylitis (AS). The aim of the study was to improve the quality of diagnostics, to establish new links in pathogenesis and to identify prognostic criteria for the clinical course of vascular lesion in systemic autoimmune rheumatic diseases. Systemic angiopathy develops in 88% of the number of patients with SSD, 85% with AS, 84% with SLE and 61% with RA, according to laboratory and instrumental methods of research in patients with different nosological forms of systemic autoimmune rheumatic diseases, there are features of vascular lesions that depend on the degree activity of the pathological process. Further clarification of clinical, laboratory and instrumental features of vascular lesions in systemic autoimmune rheumatic diseases will improve the quality of early diagnosis of the pathological process, develop criteria predicting the clinical course of the disease.
Key words: systemic rheumatic diseases, angiopathy, clinic, pathogenesis.

Introduction. The systemic autoimmune rheumatic diseases (SARD) group includes systemic lupus erythematosus (SLE), systemic scleroderma (SSD), rheumatoid arthritis (RA) and ankylosing spondylitis (AS), which are characterized by increase arterial rigidity with signs of generalized angiopathy [1,2]. SARD are characterized by high mortality in all regions of the globe, and the number of such patients is increasing everywhere [3]. Among all diseases of the rheumatological profile, the share of SLE and RA is by 3% of cases, SSD and AS - by 2% respectively [4].

Vascular damage (angiopathy, vasopathy, vasculopathy) is one of the main manifestations of SLE, SSD, RA and AS, which according to the International Chapel-Hill classification are characterized as "vasculitis associated with a systemic disease" [5, 6]. Angiopathy in the presence of SARD can involve vessels of the most diverse caliber - from the lesions of capillaries and arterioles (much more often) to the aorta, and the clinical course and pathogenesis of such vascular changes have not been studied sufficiently [7-10].

The aim of the study: to improve the quality of diagnostics, to establish new links in the pathogenesis and to identify prognostic criteria for the course of vascular lesions in SARD.

Material and methods. 379 patients with SARD were monitored, including 112 patients with SLE, 57 – with SRS, 131 - with RA, and 79 - with AS. In the first group, the ratio of men and women was 1: 9, in the second group - 1: 8, in the third group - 1: 2, in the fourth - 19: 1, minimal, moderate and high degree of disease activity - 1: 2: 1, 2: 2: 1, 1: 2: 1, 1: 1: 1 respectively, the average age of the examined patients was 35,7 ± 1,02 years, 41,5 ± 1,67 years, 45,7 ± 1,02 years, 38,3 ± 1,28 years, and the duration of clinical manifestation was 11,6 ± 0,78 years, 11,0 ± 0,95 years, 9,4 ± 0,68 years and 11,3 ± 0,82 years. The subacute course of SLE was found in 14% of cases, and the ratio of I, II, III and IV stages of chronic kidney disease was 20: 2: 2: 1, the limited form of SSD occurred in 47% of cases, diffuse - in 30%, I, II , III and IV stages of RA were diagnosed in 8%, 40%, 34% and 19% of the number of patients, and the average arthritis activity was 4,5 ± 0,10 r.u, the ratio of slow to fast-progressive AS 4: 1, with bilateral sakroileitis found in 73% of cases, and enthesites in 10%.

Patients underwent echocardiography (Acuson-Aspen-Siemens, Germany and HD-11-XE-Philips, the Netherlands), sonography of vessels and internal organs (Envisor-Philips (Netherlands), ultrasound dopplerography of vessels (Aplia-XG-Toshiba, Japan), conjunctival biomycroscopy ("Haag-Streit-Bern-900", Switzerland) was used to determine the integral clinical and instrumental indices of vascular pathology (Ω, Ψ). The content of C-reactive protein (CRP) and rheumatoid factor (RF) in blood serum were studied with the analyzer "Olympus-AU-640" ("Japan"), concentration of anti-deoxyribonucleic acid (aDNA), cardiolipin (aCL), citrulline cyclic peptide (aCCP), endothelial vascular growth factor (VEGF), endothelin-1 (ET1), thromboxane-A2 (TxA2), prostacyclin (PgI2), cyclic guanosine monophosphate (CGMP) was studied with reader PR2100 Sanofi diagnostic pasteur, France), - levels of antinuclear factor (ANF) and topoisomerase antibodies (aScl70) were studied with imunoblot method(Euroline-Euroimmun, Germany).

Statistical processing of the obtained results of the research

was carried out with the help of computer variational, correlation, nonparametric, ANOVA and multivariate ANOVA / MANOVA variance analysis (Microsoft Excel and Statistica-Stat-Soft, USA). The mean values, their standard deviations and errors, the Pearson correlation parametric coefficients and the nonparametric Kendall coefficients, the Brown-Forsythe and Wilcoxon-Rao dispersion criteria, the Student-McNamara-Fisher differences, and the reliability of the statistical indices were estimated. The critical level of significance in this study when testing statistical hypotheses was assumed to be 0.05.

Results. Patients with angiopathy were included in the main group of examinees, while the remaining patients were in the control group. The frequency of separate signs of angiopathy in patients with SARD are presented in the table.

The systemic nature of angiopathy develops in 84% of the number of patients with SLE, which is associated with the overall severity of the disease and the state of the autonomic nervous system, it is determined by the degree of activity of the pathological process, by the presence and levels of ANF and aCL in blood, by involving capillaries, arterioles, aorta and carotid arteries, by the development of antiphospholipid syndrome, pulmonary hypertension, skin lesions, its appendages, mucous membranes, kidney, central and peripheral nervous system. And a status of conjunctiva vessels in the biomicroscopy may be an integral diagnostic criterion.

Table. The frequency of diiferent angiopathy signs in patients with SARD (%)

Features of angiopathy	Nosoological form SARD			
	SLE (n=112)	SSD (n=57)	RA (n=131)	AS (n=79)
Vascular lesion of the skin	75,5	17,6	20,0	10,1
Capillaritis of hands and feet	11,7	8,8	12,5	1,3
Leukocytoclastic enanthema	13,8	7,0	-	-
Heilit	7,5	-	-	1,3
Uveitis	6,4	8,8	23,8	26,6
Raynaud's syndrome	30,9	89,5	18,8	13,9
Arterial hypertension	34,1	29,8	16,3	15,2
Pulmonary hypertension	20,2	24,6	21,3	51,9
Glomerulonephritis	83,0	19,3	26,3	25,3
Antiphospholipid syndrome	35,1	14,0	8,8	5,1
Encephalopathy	33,0	26,3	6,3	53,2
Peripheral vasoneuropathy	16,0	33,3	21,3	32,9

Manifest lesion of the vessels is observed in 88% of the number of patients with SSD, the clinical and instrumental features of which are closely related to the degree of activity and duration of the disease, the nature of the "vegetative passport" (vagotonic or sympathotonic type), seropositivity for aScl, ANF, aDNA and aCL, but angiopathy is accompanied by changes in vasodilation, increased pulmonary pressure and vascular resistance, while the integral parameters of Ω and Ψ affect the severity of scleroderma pneumopathy and nephropathy, and the values of aScl and ANF, along with the level of endothelial dysfunction of blood vessels, participate in pathogenetic constructs of vasculopathy.

Systemic angiopathy is observed in 61% of the RA patients, more often in cases of high visceral activity with the presence of osteoporosis, the development of skin vasculitis and peripheral vasoneuropathy closely related to the level of aCCP in serum, which, along with the CRP concentration, has a negative prognostic significance concerning vascular pathology, and the appearance of digital arteritis is determined by the activity of the joint syndrome, glomerulonephritis - high level of aCCP in blood, and the presence of angiopathy reflects the increase of pressure in a lesser circulation.

Angiopathy is observed in 85% of the patients with AS, the development of which is directly related to the degree of activity of the pathological process and to RF seropositivity, at the same time cutaneous vasculitis depends on the age of the patients; and uveitis, scleritis, Raynaud's syndrome, central and peripheral nervous system damage - on the features of the course of the joint syndrome; the integral indices of Ω and Ψ reliably correlate with RF and CRP, and vascular lesions occurs with an increase in the values of pulmonary pressure and vascular resistance, in the genesis of which CRP participates, that have prognostic significance.

Endothelial dysfunction of the vessels develops in 53% of the patients with AS, which in the presence of vascular pathology is accompanied by a large increase in the concentration of cGMP in the blood and a decrease in PgI2, which is associated with the duration of the disease, the degree of activity of the pathological process, peripheral nervous system lesion, the severity of spondylopathy and sacroiliitis, at the same time violations of endothelial vascular dysfunction involved in the pathogenetic constructs of enthesopathies, tendovaginitis, uveitis and scleritis, determine the rate of the joint syndrome progression and the integral severity of angiopathy.

Endothelial dysfunction of vessels in the form of an imbalance of vasoconstrictors VEGF, ET1, TxA2 and vasodilator PgI2 occurs in 35% of RA patients with renal damage and in 39% of SLE patients, which are closely related to the severity of clinical and instrumental signs of systemic angiopathy (with skin, mucous membranes and peripheral nervous system lesions, with parameters of biomicroscopy of the vessels of the conjunctiva and vasodilation of the brachial artery).

On the basis of the performing variational, correlation, regression and variance analysis, the criteria have a certain practical significance: 1) prognosis negative criteria for the severe course of angiopathy in SLE are serum level of aCL> 15 U/ml and in RA - the content of aCCP > 40 U/ml; 2) in patients with SSD, the values of the total vasal conjunctival index> 10 points refer to the unfavorable signs of the leukocytoclastic enanthema; 3) in cases of SSD and AS to the risk factors for pulmonary hypertension are concerned the positivity of the disease according to aScl70 and concentration in the blood CRP> 20 mg / l, respectively.

Conclusion. Systemic angiopathy develops in 88% of the number of patients with SSD, 85% - with AS, 84% - with SLE and 61% - with RA, and according to laboratory and instrumental methods of research, there are features of vascular lesions in patients with different nosological forms of autoimmune rheumatic diseases, in the pathogenetic constructions of which immune and endothelial-vascular disorders are involved. Further clarification of the features of vascular lesions in SLE, SSD, RA and AS will contribute to improving the quality of early diagnosis of the pathological process, the development of predicting criteria the course of the disease.

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INFORMATION FACTORS OF INCREASING ADHERENCE OF PATIENTS TO CLINICAL EXAMINATION

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Abstract. Forming the population's need for prevention is one of the main tasks of public health. The actual issue remains the study of ways to increase the awareness and attendance of the population of preventive measures. The introduction of modern information technologies makes it possible to increase the attendance of citizens for preventive measures. The authors analyze the means and methods of inviting the population for clinical examination and identified the features that should be taken into account when forming public awareness programs.
Keywords: prophylaxis, medical examination, information technologies.

Аннотация. Формирование у населения потребности к профилактике – это одна из основных задач общественного здравоохранения. Актуальным вопросом остается изучение способов повышения информированности и