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THYROID LESION AND ITS PROGNOSTIC VALUE WITH SYSTEMIC LUPUS ERYTHEMATOSUS

Abstract: Resume. In 105 patients with systemic lupus erythematosus (SLE), a comprehensive clinical and laboratory examination assessed the lesion of the thyroid gland (thyroid gland), its variants, and the functional state of the organ to determine the prognostic significance of thyroid pathology in SLE. Thyroid damage was detected in 33 (31.4%), the most common being autoimmune thyroiditis. It has been shown that thyroid damage in SLE, in particular AIT with an outcome of hypothyroidism is a risk factor for atherosclerosis due to the occurrence of endothelial dysfunction, remodeling of the vascular arterial wall, thickening of its intimomedial layer and formation of atherosclerotic plaques.
Key words:systemic lupus erythematosus, thyroid lesion, prognosis.

INTRODUCTION

The involvement of the thyroid gland in the immune process in systemic lupus erythematosus (SLE) is not uncommon due to its damage by various antibodies that are not specific to the gland, but are often detected in SLE— such as anticardiolipin antibodies, smooth muscle and DNA. The result of a pronounced aggressiveness of the autoimmune process There is also a decrease in thyroid function, observed on average in 3.9-23% of patients with SLE. Studies on thyroid pathology and thyroid function in SLE often evaluate only some aspects of this issue, more concerning structural and morphological changes in the thyroid gland itself, without taking into account the completeness of clinical, laboratory and immunological activity of SLE. Thyroid damage in patients SLE is rarely diagnosed and is considered in clinical practice. Meanwhile, hypothyroidism and autoimmune thyroiditis, including their subclinical forms, may be risk factors for the development of coronary heart disease not only due to lipid disorders and the effect on blood pressure, but also due to coagulation and microcirculatory changes. Considering the significant increase in the risk of cardiovascular mortality in SLE, According to prospective observations, especially in young and middle-aged patients, the study of this issue is particularly relevant. The aim of the work was to clarify the features of the lesion, the functional state of the thyroid gland (thyroid gland), depending on the clinical course. SLE for assessing the prognostic significance of thyroid pathology.

MATERIALS AND METHODS OF RESEARCH

105 patients with significant SLE were examined. The diagnosis of SLE was verified based on the diagnostic criteria of the American Association of Rheumatology. The assessment of clinical activity was carried out according to the criteria of V.A. Nasonova and in SLEDAI-K2 scores. The SLICC/ACR DAMAGE INDEX was used. All patients expressed their voluntary informed consent to participate in the study in writing. Among the examined 98 (93.3%) women with an average age of 37.3±13.1 years and a disease duration of 8.4±6.9 years, II degree of activity and chronic course — 59 (56,2%). The average degree of activity according to the SLEDAIK2 index was 10.8±6.8, the damage index was SLICC/ACR — 1,9±1,7. All the examined patients revealed systemic manifestations of the disease characteristic of SLE. In addition to the conventional examination, all patients were immunoassayedto determine antibodies to

thyroglobulin (TG) and thyroid peroxidase (TPO), thyroid hormones (T3 and T4), thyroid-stimulating hormone (TSH); the level of C3 and C4 components of complement and Ig A, M, G turbodimetrically at a wavelength of 340 nm on the Kobas Integra apparatus. Ultrasound examination (ultrasound) of the thyroid gland was performed by duplex scanning using pulse-wave Doppler mode and color Doppler mapping (CDK). The echographic dimensions of the thyroid gland were evaluated: separately for the right and left lobes — transverse (width) and longitudinal (length) dimensions, thickness, volume, thickness of the isthmus, volume of the entire gland, maximum and minimum blood flow rates and vascular resistance indices. To assess the prognostic significance of thyroid damage in patients with SLE, a study was conducted endothelial functions, ultrasound determination of the thickness of the intimomedial (TIM) segment of the common carotid artery. Endothelium-dependent (EDVD) and endothelium-independent vasodilation (ENVD) with nitroglycerin were evaluated using high-frequency linear sensors of 7-12 MHz of an Aplio XG ultrasound scanner (Toshiba, Japan) in the area of the right brachial artery (PA). The control group consisted of 20 practically healthy individuals, comparable to the group of patients in age and gender. The received materials were subjected to statistical processing in the Statistica 6.0 program (firms StatSoft Inc.). The Z-criterion, Spearman's correlation coefficient, was used. The critical level of significance when testing statistical hypotheses is $p<0.05$.

THE RESULTS AND THEIR DISCUSSION

Of the 105 examined patients with SLE , 33 (31.4%) had any thyroid changes, $p=0.0001$, this was statistically significantly higher than the population level in the Orenburg region in 2011 (2%). Autoimmune thyroiditis (AIT) was present in 19 (57.6% of the total thyroid pathology and 18.1% in relation to SLE); in 5 (15.2%) — nodular goiter — 1st (in 4) and 2nd (in 1) grade; in isolated cases — diffuse 1 (3.0%) and mixed goiter — 2 (6.1%). Thus, the dominant thyroid pathology in As expected, the SLE turned out to be AIT. Its frequency in our study (18.1%) was slightly higher than in others populations: in particular, 9.5% of Korean patients with SLE had Hashimoto's thyroiditis; according to E. Biro et al., the prevalence of Hashimoto's thyroiditis in SLE was 90 times higher than in the general population. From a functional point of view, patients with SLE with thyroid pathology had predominantly reduced (57.6%) and, less often, normal thyroid function (42.4%). Hypothyroidism was more often subclinical (8 — 24.2%) and mild (6-18.2%), less often — moderate (5-15.2%). A decrease in thyroid function was noted exclusively in patients with AIT. Back at 6 In 18.2% of cases where no thyroid pathology could be detected, hypothyroidism was also verified - mild and subclinical. The decrease in thyroid function may be due to the persistent high activity of the process in SLE, long -term use of glucocorticosteroid hormones and basic medications. In patients with thyroid pathology, the age was more significant (33.1±12.0 and 27.5±1.8 — without thyroid pathology, $p<0.05$), due to the predominance of women over the age of 45 years: 51.3% vs. 31.8% ($p<0,05$). The duration of the disease, the course, and the degree of activity were comparable. The index of SLICC/ACR damage in the group with thyroid damage was significantly higher than in patients without organ pathology — 2.5±1.7 and 1.6±1.5 ($p=0.002$). According to the number of patients positive for antibodies to denatured DNA, red blood cells (in the sample Coombs), the presence of cryoglobulinemia and hypocomplementemia of complement components C3 and C4, the group of patients with thyroid damage significantly exceeded that without organ pathology. The quantitative assessment revealed a clear upward trend in the level of CIC, IG M, and a decrease in the complement component C4 in patients with thyroid damage. In this group, joint damage prevailed (79.5% and 49.9%, $p=0.05$), lung damage (63.7% and 51.4%, $p>0.05$, respectively), serous membranes (39.4%, 3.0% and 3.0%, 0%, respectively, $p<0.05$), fever (23.1 vs. 15.1%,

p>0.05), polyneuropathy (36.4% and 23.6%, p>0.05, respectively), LE-cell phenomenon (45.4 % and 30.5%, p<0.05), leukopenia and thrombocytopenia (21.2% and 5.5%— p<0.05, respectively), thrombophlebitis (12.8% and 4.5%, p>0.05, respectively), obviously due to the more frequent presence of antiphospholipid syndrome (APS) (36.4% and 23.6%, p>0.05). Patients with AIT had a statistically significantly

higher degree of activity, the level of fibrinogen and CRP (which differed from subgroups with other variants of thyroid pathology with a degree close to reliability). Expected degree of activity by SLEDAI K2 was also higher in the AIT subgroup, and DIC and AFS were more common. According to most researchers, autoimmune thyroid damage in some cases manifests itself due to the appearance of antibodies. to thyroid antigens, which implies a significant activity of the immune-inflammatory process in SLE. The values of this index decreased from the 1st group of patients to the 3rd and were the lowest in the group with hypothyroidism. There was an inverse relationship between the systolic hyperemia index and TIM (r=-0.35, p<0.05). To average the indicators of the maximum final diastolic blood flow velocity, we proposed calculating the diastolic hyperemia index (IDH) using the formula: IDG= Vd % / EDD % , where Vd % is the ratio of the maximum final diastolic blood flow rate in the PA after occlusion for 60 seconds to the initial maximum final diastolic rate, EDD % is the ratio of the diameter of the PA after occlusion for 60 seconds to the initial diameter of the PA. The lowest IDH score was in the group with thyroid pathology, and the highest in the group with hypothyroidism. The diastolic hyperemia index was directly correlated with the level of total cholesterol (r=0.35, p<0.05), Willebrand factor (r=0.27, p<0.05), CRP (r=0.34, p<0.05). Thus, the percentage of increase in 1-minute EDVD in the group with hypothyroidism differed little from the group without thyroid pathology, whereas the increase in ENVD It was higher here at 1 minute, which may indicate the predominance of factors damaging the endothelium itself in the pathogenesis of DE in patients with SLE with hypothyroidism. These data are confirmed by the fact that in the group of thyroid pathology, the parameters of the lipid spectrum were less changed, but in these patients the Willebrand factor was also significantly more significant, on the one hand, a marker of endothelial dysfunction, on the other, a sign of more severe vascular wall damage in conditions of systemic vasculitis due to more significant clinical and immunological SLE activity. Interestingly, a greater degree of direct association of DE in SLE was observed with PV and CRP (r=0.13 and r=0.22) than with the level of OHC (r=0.01), although these associations were not statistically significant.

CONCLUSIONS

Thus, thyroid pathology is detected in a third (31.4%) of patients with systemic lupus erythematosus (SLE), with autoimmune thyroiditis prevailing (18.1%). In patients with SLE without thyroid pathology, who have an increased titer of antithyroid antibodies to thyroglobulin and thyroperoxidase, there is a significantly more severe course of SLE and a more significant clinical and laboratory activity of the disease, a low content of the C4 component of the complement, and a high level of the Willebrand factor. Thyroid damage in In patients with SLE, in particular, AIT with an outcome of hypothyroidism, is a risk factor for atherosclerosis due to the development of endothelial dysfunction, remodeling of the vascular arterial wall, thickening of its intimomedial layer and the formation of atherosclerotic plaques.

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