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REDUCED ENZYMATIC ACTIVITY OF ANTIOXIDANT SYSTEM IN SCLEROSIS.

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Background: The antioxidant system is a natural barrier to the pathologic effect of reactive oxygen intermediate (ROI) on the tissues of patients with systemic sclerosis (SSD). It is comprised of enzymatic links, of which the cascade of enzymes like superoxide dismutase (SOD), glutathione peroxidase (GP), glutathione reductase (GR) and others are most important. Autoantibodies to enzymes of the antioxidant system can bring about a reduction in their biochemical activity.

Objectives: Studying the effect of production of antibodies to antioxidant system enzymes SOD, GP and GR in patients with SSD using immobilized magneto-controllable adsorbents.

Methods: We observed 40 patients with SSD and 30 apparently healthy individuals. Degree I of activity was established in 15 patients (37,5%), degree II – in 24 patients (60%), degree III – in 1 patient (2,5%). Patients with subacute and acute course of the disease, degree of activity II and III were united in one group due to their small number. Antibodies to SOD, GR and GP were determined in blood serum of patients upon admission and discharge using immobilized antigen forms of enzymes (Gontar I.P., 2001). Commercial preparations served as antigens when determining antibodies to SOD, GR and GP.

Results: A study of blood sera from healthy individuals showed SOD antibodies level of $0,06 \pm 0,004$, GP antibodies – $0,045 \pm 0,003$, GR antibodies – $0,05 \pm 0,01$. The total activity of SOD in the group of healthy people was $38,2 \pm 1,2$ IU; GP – $0,153 \pm 0,007$, GR – $114,3 \pm 3,7$. Upon admission to hospital patients showed a reliably reduced activity of SOD and GR ($p < 0,002$), and unreliably reduced activity of GP ($p < 0,02$). Among patients with SSD antibodies to SOD were detected in 15 people (37,5%), antibodies to GP – in 14 (35%), antibodies to GR – in 16 (40%). With degree I of activity, high levels of SOD antibodies were detected in 4 patients (26,7%), antibodies to GP – in 4 patients (20%), to GR – in 6 (40%). When SSD was degree of activity II and III, the patients showed a reduced activity of SOD, GR and GP ($p < 0,05$) compared with healthy people, and higher antibody levels ($p < 0,002$). We noted an increase in the number of patients whose serum showed high antibody levels: antibodies to SOD in 11 people (44%), to GP – in 11 (44%), antibodies to GR – in 12 (48%). In the group of SSD patients who showed high levels of SOD, GR and GP antibodies, we observed a reliable reduction in enzymatic activity ($p < 0,05$). SOD activity was reliably reduced both in chronic and subacute course of the disease ($p < 0,02$). In the group of patients with high levels of enzyme antibodies we noted a reliable reduction in enzymatic activity. A test for antibodies to SOD, GR and GP in SSD patients with involvement of various organs and systems showed their reliably elevated level in all clinical groups ($p = 0,032$, $p = 0,034$ and $p = 0,025$).

Conclusion: Production of antibodies to antioxidant system enzymes plays an important role in pathogenesis of SSD involving internal organs and tissues and aggravating the course of the disease on the whole.

Disclosure of Interests: None declared

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AB0573

IDIOPATHIC INFLAMMATORY MYOPATHIES: A SINGLE-CENTER EXPERIENCE

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Background: Idiopathic inflammatory myopathies (IIM), mainly dermatomyositis (DM) and polymyositis (PM) are the diseases of the musculoskeletal system most commonly affecting the proximal muscles of the limbs. In addition to muscle inflammation, these conditions are multisystemic, presenting with a variety of complaints.

Objectives: As IIMs are infrequent, a single-center experience presenting quantitative data describing in-depth information on the nature of disease and treatment seems useful.

Methods: This retrospective study was conducted at a tertiary rheumatology center. Patients were diagnosed with an idiopathic inflammatory myopathy (DM, PM) in order to be included in this study. Clinical signs and symptoms of the presentation were noted during the first patient encounter as well as the follow-up. Parameters of disease activity including acute phase reactants, muscle enzyme levels, and disease-specific autoantibodies were analyzed. Treatment

and prognosis information was also noted with additional information from phone call interviews.

Results: The study includes 108 patients (78 DM, 30 PM). The mean age of diagnosis was 43.17 ± 18.73 years, follow-up duration was 44.37 ± 60.58 months. The presenting signs and symptoms of the patients are shown in Figure 1. The parameters of disease activity before and after treatment are summarized in Table 1. The clinical tests ordered during the disease management are summarized in Table 2. The mean corticosteroid dose decreased from 45.65 ± 114.53 mg to 15.22 ± 16.77 ($p = 0.007$). Other treatment methods were methotrexate ($n = 72$), rituximab ($n = 28$), Intravenous Immunoglobulin (IVIG) ($n = 9$), and cyclophosphamide ($n = 5$). Ten patients died during the follow-up. Thirty-six patients were lost to follow-up.

Table 1. The Parameters of Disease Activity Before and After Treatment

	Before Treatment	After Treatment	P Value
CPK, mean $\pm$ std (U/L)	2429.55 $\pm$ 5503.85	210.23 $\pm$ 352.97	<0.0001
LDH, mean $\pm$ std (U/L)	659.48 $\pm$ 458.74	262.83 $\pm$ 139.81	<0.0001
AST, mean $\pm$ std (U/L)	82.22 $\pm$ 92.63	25.94 $\pm$ 18.76	<0.0001
ALT, mean $\pm$ std (U/L)	75.28 $\pm$ 83.3	26.48 $\pm$ 21.68	<0.0001
ESR, mean $\pm$ std (mm/hour)	28.7 $\pm$ 25.36	25.62 $\pm$ 22.53	0.35
CRP, mean $\pm$ std (mg/L)	14.76 $\pm$ 26.86	9.12 $\pm$ 18.23	0.07
RF, mean $\pm$ std (U/mL)	15.72 $\pm$ 19.96	N/A	N/A
ANA, n (%)	26 (24.07)	N/A	N/A
Anti- JO 1, n (%)	5 (4.63)	N/A	N/A

Table 2. The Clinical Tests Ordered during the Disease Management

	Tested	Positive
Muscle Biopsy, n (%)	28 (25.93)	23 (82.14)
Skin Biopsy, n (%)	9 (8.33)	9 (100)
Thorax CT, n (%)	24 (22.22)	18 (75)
Abdominal CT, n (%)	11 (10.19)	8 (72.73)
EMG, n (%)	43 (39.81)	36 (83.72)

Figure 1. The Presenting Signs and Symptoms of the Patients

Conclusion: IIMs are very rare and can present with very different signs and symptoms. Referral to rheumatology can be challenging along with treatment. With inadequate clinical insight diagnosis and management of these patients can be delayed and quite expensive. Long term follow-up in our center enabled adequate control of disease activity as proven by the highly significant decrease in parameters of disease activity, especially muscle enzyme levels. Furthermore, we reported the variety of clinical symptoms, investigation methods and treatment essays in our center trying to reflect the potential challenges that can hinder a health clinical practice as well as highlight the requirement of a standardized approach.

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