HOMOGENATE FACTOR IN MINK WITH ALEUTIAN DISEASE

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Antibodies against a factor present in a homogenate of the organs of mink experimentally infected with Aleutian disease (AD) were found in the sera of mink with AD and also in the sera of patients with systemic lupus erythematosus, various forms of hepatitis and cirrhosis of the liver, scleroderma, and dermatomyositis. The sera of affected mink and patients did not interact with a control homogenate of the organs of healthy mink. In turn, the sera of clinically healthy mink and human subjects did not react with the AD homogenate.

KEY WORDS: Aleutian disease of mink; homogenate factor; systemic lupus erythematosus.

Considering the generally common nature of the cellular and morphological manifestations of Aleutian disease (AD) and systemic lupus erythematosus (SLE), the writers have studied interaction between purified homogenate of the organs of mink experimentally infected with AD, the sera of mink with AD, the sera of patients with SLE, and also the sera of patients with other diseases.

EXPERIMENTAL METHOD

Altogether 40 mink with AD, 90-180 days after supposed infection, and 52 patients with SLE aged 16-43 years were investigated. The control group consisted of 44 patients with various forms of hepatitis and cirrhosis of the liver, 21 patients with the diagnosis of scleroderma and dermatomyositis, and 60 patients of a mixed group (with the diagnosis of rheumatic fever, rheumatoid arthritis, nephritis, systemic vasculitis, or Sjorgren's syndrome), and also 14 clinically healthy persons (blood donors), and 13 healthy mink.

A homogenate was obtained from the spleen, liver, and kidneys of mink killed on the twelfth day after experimental infection with AD. Homogenate obtained from the same organs of healthy mink served as the control.

Interaction between the purified AD homogenate and sera was studied by immunoelectroosmophoresis [4] and by double diffusion in agarose [6].

In all the test sera the titer and type of antibodies against DNA [1, 2], precipitating antibodies against DNA [4], and free DNA, in both the serum and plasma [4, 5], were determined.

EXPERIMENTAL RESULTS

Tests of the sera gave a positive precipitation reaction with AD homogenate in 15 of 40 (38%) mink with AD, 25 of 52 (48%) patients with SLE, 13 of 44 (30%) patients with hepatitis and cirrhosis of the liver, five of 21 (24%) patients with scleroderma and dermatomyositis (all five patients had a diagnosis of scleroderma), and in three of 60 (5%) patients of the mixed group (with diagnoses of systemic vasculitis, rheumatic fever in the acute phase, and allergosepsis).

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The sera of the donors and healthy mink did not react with the AD homogenate and none of the test sera reacted with the control homogenate.

The purified AD homogenate was active in dilutions up to 1 : 64 in the reaction with sera of patients with SLE, to 1 : 16 with the sera of mink with AD, and in dilutions to 1 : 4 in the reaction with sera of patients with hepatitis, cirrhosis, scleroderma, and so on.

Antibodies against DNA were found in titers of 1 : 80-1 : 640 in all sera of mink with AD giving a positive reaction with the homogenate. Precipitating antibodies against DNA were found in only three sera and free DNA in one serum. Antibodies against DNA were found in sera not reacting with the homogenate in 11 cases, mainly in a titer of 1 : 40, but free DNA was found in nine sera in a concentration of 50-100 μg/ml.

Antibodies against DNA were present in 80% of sera from patients with SLE forming a precipitation band with AD homogenate, in titers of 1 : 80-1 : 640. Twelve sera contained precipitating antibodies against DNA and four sera contained free DNA. All sera belonged to patients with a high degree of activity of the process, whereas sera not reacting with AD homogenate as a rule were obtained from patients in a stage of remission.

It can be concluded from these results that a factor which possibly has antigenic properties is present in the homogenate of organs of mink with AD, so that antibodies against it are present in the sera specified.

The fact that only 38% of the sera of mink with AD and 48% of sera of patients with SLE reacted with AD homogenate can evidently be explained by differences in the stage of development of the disease and in the degree of activity of the process in the mink with AD and the patients with SLE at the time of testing.

According to previous observations [3], the titer of antibodies against DNA and the quantity of free circulating DNA in the sera of mink with AD depend on the stages of the disease.

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