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QUALITATIVE ANALYSIS OF THE ANTIBODY RESPONSE IN NEURO-BORRELIOSIS

P. Oschmann, A. Schnettler, H. Wellensiek, C. Hornig, W. Dorndorf, O. Hoffmann
Dept. of Neurology and Microbiology, University of Giessen Germany

In the CSF and Serum of patients with a neuroborreliosis antibodies to different specific and nonspecific antigens of Borrelia burgdorferi (B.b.) can be detected. The purpose of this study was to identify specific antibodies to improve serodiagnosis, to describe the antibody response in dependence on the choosen therapy and to detect marker antibodies for the age of the infection.
We studied 70 patients, with a neuroborreliosis Stage II treated either immunsuppresively or antibioticly and 50 patients as a controll group with other neurological non inflammatory diseases. For the qualitative antibody analysis the immunoblot technique with the B 31 strain was used. We have not found a singel IgG- or IgM-Bb specific antibody with a high specifity and sensitivity for neuroborreliosis, however, combining different antibodies to a characteristic pattern the sensitivity can be increased to 89,5 % and the specifity to 100 %. Comparing the antibody response in treated and untreated patients 4 respectively 7 1/2 years later significant differences were demonstrated. In untreated patients the number and intensity of specific antibody bands (100-, 35-, 30-, 21 kd antigens) were more pronounced, especially in the IgM subclass indicating antigen persistence. A difference in the IgG-pattern between the two groups were not seen for years. Therefore is the monitoring of single IgG antibodies useless in therapy controll. In contrast, IgM single antibodies were detected which gradually decreased in treated patients over months indicating a therapeutic effect. Antibodies against the 100-, 75-, 18 kd antigens seemed to be a valid indicator for the age of an infection. With the qualitative analysis of the specific antibody response the serodiagnosis can be improved, treatment controll and determination of the age of the infection might become possible.

PO-B4-12

POSITIVE BORRELIA BURGDORFERI SEROLOGY IN A HEALTHY POPULATION - A IMMUNOBLOT STUDY

P. Oschmann, C. Atamer*, H. Wellensiek*, C. Hornig, W. Dorndorf, O. Hoffmann
Departments of Neurology and Microbiology*, University of Giessen, FRG

The interpretation of a positive Borrelia burgdorferi (Bb.) ELISA is complicated by a high rate of subclinical infections and false positive results due to crossreacting antibodies. Detecting antibodies against certain antigens of Bb. by immunoblot may specify diagnosis.

Therefore we screened 2660 blood samples of blood donors with a Bb.-ELISA using a whole cell sonicated antigen. Depending on the cut off level 3.9 - 7.5 % of all sera were regarded as positive. These sera were tested in a Bb.-immunoblot. Antibody patterns of the following groups were compared: Blood donors with an ELISA titre 100 - 200 IU (N = 200) 200 - 400 IU (N = 57), > 400 IU (N = 29) and untreated patients with a neuroborreliosis (Stage II, N = 57).

Antibodies against the 41 kd, 60 kd antigens had the same frequency in all positive blood donors independent from the ELISA titre indicating cross reactivity. In contrast antibodies against the 21 kd, 18 kd, > 10 kd antigens correlated significantly with high ELISA titre probably indicating subclinical infection. These observations support earlier results, showing that approximatly 90 % (44 %) of control patients (negative ELISA, non-infectious neurological disease) have antibodies against the 41 kd (60 kd) antigen.

Neither the demonstration of antibodies against a certain antigen nor the number of antibodies could differentiate between a probable subclinical and clinical symptomatic infection. However, the demonstration of a combination of IgG antibodies against the 75-, 15-, < 10 kd antigen and the lacking of IgM-antibodies (35-, 30-, 21 kd antigens) supports the presence of an asymptomatic infection.

In summary a positive ELISA can be specified with the qualitative analysis of specific antibodies by the immunblot regarding false positive results, subclinical and symptomatic infections.

PO-B4-13

LYMPHOCYTE SYBSETS IN BLOOD AND CEREBROSPINAL FLUID IN PATIENTS WITH LYMPHOCYTE MENINGORADICULITIS / LYME DISEASE /

G.Rosoklija, I. Džonov, F. Kolevski, K. Bušljetić, Skopje, Macedonia, Yugoslavia.

Periphery blood and cerebrospinal fluid samples have been analysed immunologically in 7 patients with previously untreated lymphocyte meningoradiculitis, with serologically confirmed infection due to Borrelia burgdorferi. The immunologic analysis consisted of differentiation of the lymphocyte subsets in blood and cerebrospinal fluid by usage of the indirect immunofluorescence and the application of the monoclonal antibodies Becton Dickinson against T lymphocyte subsets / Anti-Leu-1 and Anti-leu-4 specific for Pan-T-cells, Anti-Leu 2a reactive by supressor / cytotoxic cells, Anti-Leu-3a specific for helper/inducer cells and Anti-Leu-11b specific for NK cells/ as well as Anti-DR which detect B-cells.

An increased number of T-helper/inducer cells, NK cells and B-cells in blood and cerebrospinal fluid with normal level of supressor/cytotoxic cells was found. It was about a penetrance of the hematoencephal barrier in all patients with lymphocyte meningoradiculitis and an intensive immunologic response. The increased number of the cells in CSF producing the immunoglobulins as well as NK cells, by what their number in CSF has been higher than that in blood, lead to conclusion that in Lyme disease due to Borrelia burgdorferi there is an intensive intrathecal /intra brain-blood barrier/ immune response, and regarding the partial immunologic priviledge of the brain, there is also a process of the active migration of cells through the brain-blood barrier.

PO-B4-14

NEW ASPECTS IN SNEDDON's SYNDROME

Stockhammer,G., Aichner,F., Kampfl,A., Zelger,B., Sepp,N., Felber,S., Fritsch,P., Gerstenbrand,F.
Innsbruck, AUSTRIA

Sneddon's syndrome (SS) is a neurocutaneous disorder, characterized by livedo racemosa and cerebrovascular episodes. This study consists of 14 patients, documented by dermatologic neurologic as well as laboratory examinations. Diagnosis was confirmed by histopathology of skin biopsies (evaluated in about 2000 serial sections). Cerebral parenchymal involvement was studied by means of MRI in all patients. On clinical examination the typical livedo racemosa was predominantly located at the lower extremities, buttocks and trunk. Skin lesions followed a distinct histopathological time course with partial detachment of endothelial cells ("endothelitis") in the initial stage. Lateron, in the early phase, lymphomononuclear cells, fibrin and erythrocytes form a sponge-like plug, leading to partial or complete occlusion of small arteries. The intermediate stage is characterized by organization of the plug and subsequent subendothelial cell proliferation. In the final stage, the occluded arteries undergoe fibrosis, shrinkage and atrophy. Laboratory values revealed decreased creatinine-clearance-ratios, other parameters, including ANA, cold-agglutinins and cryoglobulins were within normale range. There was a wide variety of neurological symptoms, most of them correlating with TIA's and completed strokes in the territory of the middle cerebral artery. MRI, in most of our patients, showed multiple parenchymal lesions, predominantly in the deep white matter, and two patients had watershed infarctions. MRI seems to be a sensitive method to confirm morphologic changes of the brain and may therefore represent a new diagnostic criterion in SS.

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