SERUM ANTI-CYTOSKELETAL PROTEINS IN ALZHEIMER DISEASE AND NORMAL ELDERLY

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Introduction: Neuronal breakdown in Alzheimer disease (AD) brains results in release of neurocytoskeletal proteins, e.g. light and heavy subunits of neurofilaments (NFL, NFH) and tau. Serum antibodies against these neuron-specific antigens may reflect a humoral response of changes related to AD.

Aims: To explore serum levels of anti-neurocytoskeletal antibodies in AD and their relationship between each other.

Patients and methods: Total IgG, anti-NFL, anti-NFH and anti-tau antibodies in serum were measured using ELISA in 47 patients with AD according to NINCDS-ADRSA criteria (age 79±9 years; 72 % females) and 23 control seniors (age 69±6 years; 65 % females). We calculated indices of all three anti-neurocytoskeletal antibodies related to total IgG.

Results: Levels of anti-tau antibodies (p=0.004) and anti-tau/total IgG indices (p=0.02) were significantly higher in the controls than those in AD patients. Total IgG antibodies tend to be elevated in the controls compared to the AD patients with borderline significance (p=0.05). We did not observe any difference for anti-NFL/NFH antibodies between both groups. Anti-NFL are related to total IgG both in the AD group (r=0.3) and in the controls (r=0.5). AD patients also showed a relationship between anti-NFL and anti-NFH (r=0.5) or anti-NFL and anti-tau (r=0.4). None of autoantibody levels correlated with the age in the AD group or in the control group.

Conclusions: Humoral autoimmunity against neurocytoskeleton is present both in the AD patients and the elderly individuals. The similar responses occur for neurofilaments, whereas anti-tau immunity is decreased in AD.

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