ORIGINAL ARTICLE

Serodiagnosis of Lyme Borreliosis Using Detection of Different Immunoglobulin (Sub)classes by Enzyme-linked Immunosorbent Assay and Western Blotting

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SUMMARY

To improve the performance of enzyme-linked immunosorbent assays for the serodiagnosis of Lyme borreliosis, the prevalence of several immunoglobulin classes and subclasses against various antigens of Borrelia burgdorferi was investigated by Western blotting. The sera of 40 early Lyme borreliosis patients (ELB), 27 late Lyme borreliosis patients (LLB), 62 healthy controls and 140 non-Lyme borreliosis patients were used. Detection of IgG1 versus total IgG was found to be more sensitive in detecting Borrelia burgdorferi antigens, especially flagellin (41 kD) protein, but did not improve the performance of Western blotting. The use of IgG1 detection showed an increase in sensitivity and specificity for the early Lyme borreliosis patient group compared to the standard IgG and IgM detection method by enzyme immunoassays using purified Borrelia burgdorferi flagellum. However, in an enzyme immunoassay using a total sonicate, sensitivity in detecting early Lyme borreliosis and late Lyme borreliosis with IgG1 remained lower compared to the detection of early Lyme borreliosis by IgM antibodies and late Lyme borreliosis by total IgG antibodies. (Clin. Lab. 2001;47:41-49)