CHLAMYDIA PNEUMONIAE INFECTION SUPPRESSES SEB-INDUCED PROLIFERATION AND CD25 EXPRESSION OF PERIPHERAL BLOOD LYMPHOCYTES

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Chlamydia (Chlamydophila) pneumoniae infection of lymphocytes in blood has been documented, and it is apparent that the modulation of lymphocyte function by infection may be critical in the development of chronic inflammatory diseases associated with infection by this bacterium. However, the effects of C. pneumoniae infection on the function of lymphocytes are not well studied. Therefore, in this study the inhibitory effect of C. pneumoniae infection on the activation of T lymphocytes was assessed in vitro. The human peripheral blood mononuclear cells were infected with C. pneumoniae and activated by using a superantigen, Staphylococcus aureus neurotoxin B (SEB). The number of lymphocytes and the expression of CD25, CD3 and VLA-4 were assessed by flow cytometry. The lymphocyte proliferation induced by SEB stimulation was decreased by the infection with C. pneumoniae to almost a half. In addition, the induction of CD25 of lymphocytes was also markedly inhibited by the infection. However, the expression levels of CD3 and VLA-4 were minimally affected. The inhibition was observed in only lymphocytes infected with viable C. pneumoniae, not with killed bacteria. These results indicate that C. pneumoniae infection of lymphocytes suppresses the activation of lymphocytes characterized by the inhibition of cell proliferation with a down-regulation of specific cell surface marker CD25. Such suppression by the infection may contribute to the development of chronic inflammatory diseases, such as atherosclerosis, associated with C. pneumoniae infection.