

Microbial infection and chronic fatigue syndrome

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Continuous cytokine release has been hypothesized as a possible cause of chronic fatigue syndrome (CFS). Chronic infection of some viruses or mycoplasma may induce the continuous cytokine release.

To find out the microbe(s) that may be a cause of CFS, we have investigated the chronic infection of mycoplasmas or viral reactivation of herpesviruses. As for the diagnostic markers of active microbial infection, quantification of microbial DNA or the titration of the specific antibodies was employed.

We have investigated four kinds of mycoplasmas that were reported to be related to CFS; *M. genus*, *M. hominis*, *M. fermentans*, *M. penetrans*. We have tried to detect the mycoplasma DNA by polymerase chain reaction (PCR) from the peripheral blood mononuclear cells (PBMCs) obtained from 48 CFS patients. However, we have not successfully detected the amplified product from mycoplasma.

In the herpesvirus study, we have mainly studied the beta-herpesviruses (human cytomegalovirus [HCMV], human herpesvirus 6 [HHV-6], and human herpesvirus 7 [HHV-7]) infection that were reported to be possible causal agents for CFS. We have detected the viral DNA by PCR and double-nested PCR from the PBMCs obtained from 48 CFS patients and 100 healthy controls. However, we have not found significant difference between CFS patients and healthy controls.

We have also tried to isolate some infectious agents from the PBMCs from CFS patients. PBMCs from 70 CFS patients were co-cultivated with the umbilical cord blood cells that were stimulated with phytohemagglutinin in the presence of interleukin 2. Cultures were observed for 4 weeks; however, no cytopathic effect was observed in each PBMC culture.