The study on the viral infections and immunological disorders for chronic fatigue syndrome (CFS).

Takeshi Sairenji[1], Kazufumi Ikuta[1], Takeshi Yamada[1, 4], Tokio Shimomura[2], Hirohiko Kuratsune[3], Eiko Ohnishi[1], Yoshihiro Sokawa[5], Ryuzo Kawahara[4], Teruo Kitani[8] and Yasuyoshi Watanabe[7]

[1]Division of Biosignaling, Department of Biomedical Sciences, School of Life Science, [2]Division of Clinical Laboratory Medicine, Department of Pathophysiological and Therapeutic Sciences, and [3]Division of Neuropsychiatry, Department of Multidisciplinary Internal Medicine, School of Medicine, Faculty of Medicine, Tottori University, Tottori, Japan; [4]Department of Molecular Medicine, Hematology and Oncology, Osaka University Graduate School of Medicine, Osaka, Japan; [5]Department of Physiology, Osaka City University Graduate School of Medicine, Osaka, Japan; [6]Sakai Hospital, Osaka, Japan.

We have been studying the viral infection and immune response on CFS. We hypothesize that CFS may be caused partly by immunological disorders especially cytokines associated with some infections (Fig. 1). Toward the goal, we studied EBV reactivation and assayed cytokines, such as IL-4, IL-10, vIL-10, and IFN and IgE in CFS patients. The preliminary results suggested that EBV was reactivated and the cytokines were up-regulated in a part of CFS patients. *In vitro* we studied the mechanisms of EBV reactivation and cytokine-up-regulation on EBV infected cells.

Recently we assayed 2', 5'-oligoadenylate synthetase (2-5AS) activities in peripheral blood mononuclear cells from CFS patients in Japan (Ikuta and Sairenji, 2003). CFS patients were diagnosed in two hospitals, H1 and H2 located in distinct areas. The 2-5AS activities were detected in 19 (86%) of 22 patients of H1and 7 (32%) of 22 patients of H2, respectively; while the activities were detected in only 1 (11%) of 9 healthy controls. We assayed the antibody titers against EBV in the patients. The titers of anti-EA-IgG antibodies which indicate EBV reactivation were detected in 2 (9%) and 7 (32%) patient(s) in 22 patients of H1 and of H2, respectively. There was a low correlation between the 2-5AS activities and antibody titers of EA-IgG. The up-regulation of 2-5AS activities suggests the some virus infections including EBV and/or immunological dysfunctions in the CFS patients. 2-5AS activities were also detected in 8 (36%) to 22 and 2 (7%) to 28, of

depression patients and the control in H1, respectively. Our results indicate that the up-regulation of 2-5AS activities is useful for a diagnostic maker of CFS and should be analyzed why 2-5AS is up-regulated constitutively in CFS.

Publications

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