This article reviews a pilot study to test the efficacy of the anti-viral drug ganciclovir in Chronic Fatigue Syndrome/Chronic Fatigue and Immune Dysfunction Synrome/Myalgic Encephalopathy (CFS/CFIDS/ME) patients. As part of the study, cardiac abnormalities were assessed in the patient group.

A study of 18 CFS patients (diagnosed according to both the 1988 and 1994 Centers for Disease Control & Prevention (CDC) criteria)) were recruited from a single infectious disease referral center. Anti-body titres for CMV (cytomegalovirus) and EBV (Epstein-Barr Virus) were performed on patients. A subset of 13 patients (group A) had high CMV IgG anti-body titres and no demonstrable titres to EBV VCA, and 10 of the 13 patients had little or no evidence of EBV multiplication (EBV-EA).

A second subset of the remaining 5 patients (group B) had no antibody to CMV (3 patients) and a greater response to EBV anti-body titre tests (3 patients).

Group A "CMV patients" had been ill only an average of 1.6 years as opposed to a mean duration in Group B "EBV patients" of 2.6 years.

The study included a control group for the occurrence of CMV and EBV antibodies in normal, non-CFS persons. The controls "...commonly had IgG anti-bodies to HCMV...,"

The controls also had "lesser experience and lower mean titres of anti-bodies to EBV EA and in 55% of the group there was no evidence of current multiplication of EBV by EA titre."

Although differences were found in CMV and EBV anti-body titres among groups A, B, and C, these differences were not statistically significant.

An "Energy Index" was utilized in order to assist in determining the functional status of patients both before and after administration of ganciclovir. In this index Grade 0 indicates patient is bedridden; Grades 1-5 indicate moderate to severe illness; Grades 6-9 indicate ability to work

with careful moderation. The mean EI of the CFS patient group was 3.6 and the control group 9.9.

Typical symptoms among CFS patients in Grades 0-5 include left-sided chest aches, palpitations, light-headedness, sore- throats and feverishness.

Cardiac studies were performed on the patient group. ECG and echocardiograms were generally normal, but "every patient in groups A and B showed abnormal T-wave oscillations by 24-hour Holter monitoring." (Patients in groups A and B had no known pre-existing chronic illnesses.)

Moreover, "...abnormal myocardial dynamics by MUGA rest/stress studies were present in 6 of 13 patients (group A). These abnormalities consisted of problems with left ventricular dynamics...No patient in group B had abnormal ventricular dynamics."

Importantly: "These MUGA study changes are not seen in normal persons leading a sedentary life. Deconditioning and a sedentary life in normal patients are not causes of decreased or falling left ventricular EFs [ejection fractions]."

**Infusions of Ganciclovir:** All 18 patients were given ganciclovir intravenously for 30 days. They were advised to avoid exercise, fatigue and alcohol. Medication was provided to combat insomnia and severe reactive depression. "None of the patients had had psychiatric illnesses before the onset of CFS." Patients "were asked not to exercise until 6 months after the completion of ganciclovir."

**Results:** At the start of treatment, the severity of the fatigue "was similar" in both CFS subgroups. "Six months later the energy index of patients in Group A was 7; but in Group B, only 4. There was very substantial improvement in the "CMV subset", but only slight improvement in the "EBV subset." (Remember also that Group A was sick for less time than Group B.) The study, however, was "..not blinded, randomized, or placebo-controlled."

In Group A, after treatment "...three patients with previously abnormal myocardial dynamics

reverted to normal; in three others results of MUGA tests improved with lesser degrees of tardokinesis, hypokinesis, or left ventricular dilation."