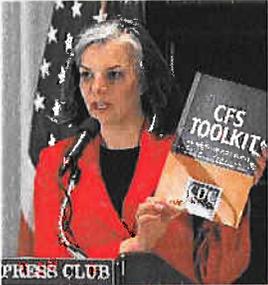


Chronic Fatigue Syndrome: Building Credible Momentum in Science & Research

November 3, 2006
National Press Club

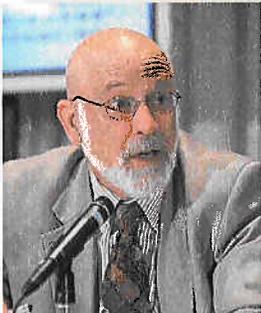
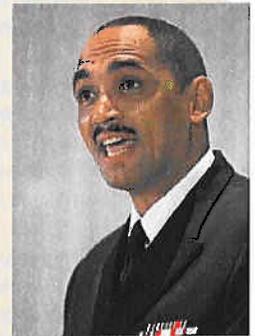


“CDC hopes to help patients know that they have an illness that requires medical attention, and to help clinicians understand, diagnose and help people with chronic fatigue syndrome (CFS). We are beginning to open the shroud of mystery that has clouded CFS for a long time. We’re beginning to develop clues and hypotheses that we hope lead to better scientific understanding, prevention and treatment for CFS.”

Julie Gerberding, M.D.
Director, U.S. Centers for Disease Control & Prevention

“This first national awareness campaign focuses all of us on the very real need to make people aware of CFS and the need to redouble our efforts to learn more about it and support research. Seven new research grants from the National Institutes of Health will help us better understand how the brain functions in its relationship to CFS. This is just a beginning. There’s so much more that needs to occur.”

John O. Agwunobi, M.D.
Assistant Secretary for Health
Department of Health and Human Services



“We have documented, as have others, that the level of functional impairment in people who suffer from CFS is comparable to multiple sclerosis, AIDS, end-stage renal failure and chronic obstructive pulmonary disease. We also found that patients who get appropriate care early in their illness have a significantly better long-term health outcome than those who do not.”

William C. Reeves, M.D.
Chief, Chronic Viral Diseases Branch
U.S. Centers for Disease Control & Prevention

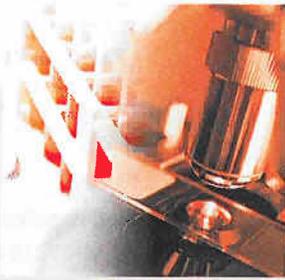
“There are now over 4,000 published studies that show underlying biological abnormalities in patients with this illness. It’s not an illness that people can simply imagine that they have and it’s not a psychological illness. In my view, that debate, which has raged for 20 years, should now be over.”

Anthony S. Komaroff, M.D.
Professor of Medicine
Harvard Medical School



“While there continue to be advances in understanding CFS, I’m less enthusiastic about advances in the clinical care of patients. CFS is still very challenging to treat. It creates a cycle of frustration for patients and for their physicians. We need much more work to understand the biological underpinnings of CFS and have it translate into effective clinical treatments.”

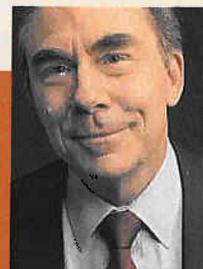
Nancy G. Klimas, M.D.
Professor of Medicine
University of Miami



Ten Discoveries about the Biology of CFS

- 1** Chronic fatigue syndrome is not a form of depression, and many patients with CFS have no diagnosable psychiatric disorder. As with most chronic illnesses, some CFS patients become depressed because of the impact of the illness on their lives, but most studies find that the majority haven't experienced depression before the onset of illness.
- 2** There's a state of chronic, low-grade immune activation in CFS. There is evidence of activated T cells, activation of genes reflecting immune activation and increased levels of immune system chemicals called cytokines.
- 3** There's substantial evidence of poorly functioning natural killer (NK) cells—white blood cells important in fighting viral infections. Studies differ as to whether there may be increased numbers of NK cells in CFS patients.
- 4** Abnormalities in the white matter of the brain have been found in CFS patients using magnetic resonance imaging (MRI) scans. Typically, these are small (fraction of an inch) areas just below the cerebral cortex, the outermost area of the brain hemispheres. Differences in gray matter volume are also being observed.
- 5** Abnormalities in brain metabolism, as indicated by single photon emission computed tomography (SPECT) and positron emission tomography (PET), have been discovered. Other research suggests there's something wrong with energy metabolism and the oxidative electron transport chain in the mitochondria of CFS patients.
- 6** CFS patients experience abnormalities in multiple neuroendocrine systems in the brain, particularly depression of the hypothalamic-pituitary-adrenal (HPA) axis, but also the hypothalamic-prolactin axis and hypothalamic-growth hormone axis.
- 7** Cognitive impairment is common in CFS patients. The most frequently documented abnormalities are difficulty with information processing, memory and/or attention.
- 8** Abnormalities of the autonomic nervous system have been found by numerous independent researchers. These include a failure of the body to maintain blood pressure after a person stands up, abnormal responses of the heart rate to standing and unusual pooling of blood in the veins of the legs. Some studies also find low levels of blood volume.
- 9** CFS patients have disordered expression of genes that are important in energy metabolism. Energy comes from certain natural chemicals that are processed by enzymes inside each cell. These enzymes are controlled by specific genes. Other genomic research is revealing involvement of genes connected to HPA axis activity, the sympathetic nervous system and immune function.
- 10** There's evidence of more frequent latent active infection with various herpesviruses and enteroviruses. The herpesviruses include Epstein Barr, HHV-6 and cytomegalovirus. Other infectious agents, like bacterium that cause Lyme disease, Ross River virus and Q fever, can also trigger CFS.

The above summary of CFS research findings was provided by Anthony Komaroff, MD, a professor of medicine at Harvard Medical School, senior physician at Brigham and Women's Hospital in Boston and the editor-in chief of Harvard Health Publications. Dr. Komaroff has an ongoing research program on chronic fatigue syndrome and has published over 230 research articles and book chapters.



The CFIDS Association of America

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