Mycoplasma Infections

For years we in the CFS/FMS/MCS community have been watching the reports of Gulf War Illness (GWI) knowing, instinctively, that we all had something in common. Not only do we all have common symptoms, but we may also be infected with common pathogenic organisms. That pathogen is a Mycoplasma. Various pathogenic strains have been identified including the fermentans (incognitus), penetrans, genitalium, hominis, and pneumoniae. And, we may be infected with several of these strains at one time. Following is a simple overview of the information I have gathered about this Mycoplasma pathogen and how it affects us.

How was Mycoplasma Infection Identified In GWS and CFIDS Patients?

The information trail started with Garth and Nancy Nicolson. Their daughter returned from the Gulf War with an unexplained illness. She was unable to continue her studies at college, and moved back home. Soon after, her parents both became ill with the same symptoms. Medical tests revealed nothing abnormal, but they all continued to worsen. Fortunately for them, however, the Nicolson’s were molecular pathologists with an entire research laboratory at their disposal. The Nicolson’s drew blood and tissue samples from themselves and their daughter, and set the research team, to work.

Garth Nicolson Ph.D. is a professor and former chairman of the Department of Tumor Biology at the University of Texas, M.D. Anderson Cancer Center, Houston, TX. He is also a professor of Internal Medicine, Pathology and Laboratory Medicine at the University of Texas Medical School. He has published over 500 scientific and medical papers, has edited 14 books, he is the current editor of two scientific and medical journals. Dr. Nicolson has been nominated for the Nobel Prize in cell microbiology, is among the 100 most cited researchers in the world, and sits on the board of the American Association of Cancer Research. Nancy Nicolson, Ph.D. is president of the Rhodon Foundation for Biomedical Research. She, also, has published numerous scientific papers and was a professor in the Department of Immunology and Microbiology at Baylor College of Medicine.

What they found was a living Mycoplasma pathogen. In order to find this organism, they had to break open the leukocytes (white blood cells), and perform a specific test called a Polymerase Chain Reaction (PCR) of the DNA of the organism. Nancy also perfected another test, called Gene Tracking, which confirms the PCR results. (1) To gather more information, they then started testing other Gulf War Illness (GWI) patients. What they found was that approximately 50% were positive for the live organism. The Nicolson’s then researched treatment options and found a number of antibiotics that were effective against the organism. (2) After a lengthy course of antibiotics, they recovered. But, the word was out, and requests for testing of GWI patients kept coming in to the lab. They were inundated! As their evidence mounted, they
published their data (3) (4) (5) and testified before the President’s Panel on Gulf War Illnesses.
(6)

Then the connection was made by the government of the similarities between GWI and CFIDS. (7) By this time, the Nicolson’s lab was already running tests of those with CFIDS---with the same results-- approximately 50% positive! Garth and Nancy Nicolson even wrote an article for the CFIDS Chronicle outlining the diagnosis and treatment of GWI/CFIDS. (8)

But, the politics of medicine and research slowed the gears of progress! Garth and Nancy had to relocate their non-profit lab (The Institute for Molecular Medicine), first to Irvine, CA, then to Huntington Beach, CA. They have had difficulty finding funding for the Mycoplasma research. For their research to continue with CFIDS testing, they need a new grant. In the meantime, they have formed a non-profit organization and take tax deductible donations. Presently, one can become a "Friend of the Institute" and have the various tests done at The Institute for Molecular Biology lab, as well as, participate in the research (see Mycoplasma Resource List for full instructions).

They only recently opened a private laboratory, International Molecular Diagnostics, that can run a variety of tests and does third-party billing of insurance for part of the cost of the tests.

Those of us who have tested positive and have begun treatment with the antibiotics recommended by the Nicolson’s have had tremendous success. Some of these people have been ill with CFS/FMS/MCS for 15-20 years. But, they are feeling better for the first time since becoming ill! Some have even returned to work. Many have completed several months of antibiotics, and several have been taking them continuously for 4-5 years. Since most of us in the CFS/FMS/MCS community have been ill with this organism for a lot longer than the GWI patients do, it may take longer to successfully treat the infection.

What Is Mycoplasma?

Mycoplasmas are the smallest and simplest organism known. They are not new. They were discovered over 100 years ago and evolved from bacteria. The "garden variety" mycoplasma is not usually associated with severe diseases. (13) However, sometime over the past 30 years, the organism has been altered to become more lethal. The Mycoplasmas found by the Nicolson’s, in their lab, contain unusual gene sequences that were probably inserted into the Mycoplasma by a specific laboratory procedure. This discovery has led them to conclude that the new forms of mycoplasma were specifically engineered for germ warfare. (9) In it’s laboratory evolution, the Mycoplasmas have become more invasive, more difficult to find, and capable of causing severe diseases in humans. Diseases, like Gulf War Illness, CFS, FMS, MCS, Rheumatoid Arthritis, and AIDS, for instance.

The earlier form of Mycoplasma was studied by Dr. Shyh Lo, formerly of Tanox Biosystems, a spin-off biotechnology company from the Baylor College of Medicine, but now affiliated with the Armed Forces Institute of Pathology in Washington D.C. Dr. Lo has been credited with
discovering the new pathogenic form of Mycoplasmas, and he currently holds several patents on methods for special handling of the organisms for study and development. (10) In one of his patents (in 1991), Dr. Lo lists the following diseases that are caused by Mycoplasma: HIV infection, AIDS, Aids Related Complex (ARC), Chronic Fatigue Syndrome, Wegener’s Disease, Sarcoidosis, Respiratory Distress Syndrome, Kibuchi’s Disease, Alzheimer’s Disease, and Lupus. (10) In addition, Baseman and Tully have reviewed the literature on the role of Mycoplasmal infections in human disease and have concluded that they are important factors or co-factors in a variety of chronic illnesses. (11)

Unlike bacteria, the Mycoplasma has no cell wall. This enables it to invade tissue cells, incorporating the cell's nutrients, and using the cell to replicate itself (much like a retrovirus). (13) When the Mycoplasma breaks out of the cell, it takes a piece of the host cell membrane with it. When the immune system attacks the Mycoplasma, it also gets "turned on" to attacking the host cell. In this way, an autoimmune condition can begin. Autoimmune conditions associated with Mycoplasmas include arthritis, Fibromyalgia, myositis, thyroid dysfunction (Hashimoto’s or Grave’s Diseases), and adrenal dysfunction, signs and symptoms of Lupus, Multiple Sclerosis, and Lou Gehrig’s Disease. (12)

The Mycoplasma organism has the capacity to invade cells, tissues and blood, producing systemic infections in numerous organ systems. According to Dr. Nicholson, it can penetrate the central and peripheral nervous system. Because it has the ability to damage the immune system by invading the natural killer cells (NK cells) of the lymphocytes, it weakens them, reduces their numbers, and renders them susceptible to viral infections, such as Human Herpes Virus 6 (HHV6), HHV7 or HHV8. (14) (15) (16) It may also explain some of the environmentally sensitive responses that are seen with CFIDS and MCS.

Mycoplasma infection can trigger inflammatory cytokine over-production that is commonly seen in CFS/FMS. With the induction of CD-4+ helper cells of the immune system, an over production of cytokines such as Interleukin-1, Interleukin-6 and Tumor Necrosis Factor-alpha occurs. (15)(16)(17) These elevated cytokines have been implicated in the development of many of the CFS/FMS symptoms, including neurological involvement. (19)(20) They can have specific or nonspecific stimulatory or suppressive effects on lymphocytes, as measured by B and T cell activation. (18) In addition, the Mycoplasma infection has immunomodulating effects, activating the hypothalamic-pituitary-adrenal axis. This can cause a cascade of limbic system symptoms characteristic of CFS/FMS. (19)

The Mycoplasma is a slow-growing, stealth-type organism that can cause the patient to be very ill. It activates the immune system, then can successfully hide from it within the host immune cells. It can then circulate throughout the body and go wherever a white blood cell can go. It can cause infection deep within any or all organs. It can even cross the blood/brain barrier and cause brain and spinal infection. It has also been known to cross the placental barrier to an unborn fetus.
Unless the white blood cell is split open and examined for the evidence of the live organism, it can go undetected for years. Because the organism resides deep within the cells, conventional antibody tests may be relatively useless. (21) The splitting open (fraction) of leukocytes (white blood cells) from a fresh blood sample, with a forensic PCR test is the most accurate way to detect the presence of active infection with a live pathogen. Further gene-tracking techniques perfected by the Nicolson’s are even more accurate. (22)

**Contagion**

Although the researchers have not clearly established how contagious the Mycoplasmas are, they have made some inferences from the data they have collected. The Mycoplasma organism has been found in the blood and body fluids, spinal fluid, bone marrow, urine, and in the lungs, nose and mouth. The Mycoplasma is reported to be able to survive for two hours outside the body. Of those with Gulf War Illness, 50% of their spouses have contracted the disease and 100% of their children. Several babies have also been known to be born with the disease. Some sort of chemical exposure or immune distress (i.e., auto accident, surgery, cancer) appears to pre-date the onset of illness. Of those with CFS, FMS, and MCS, numerous friends and spouses have the illness, as well as close relatives. So, from the anecdotal reports, it would appear that Mycoplasma is contagious after both casual and intimate contact. This means that the organism may possibly be passed to another through sputum (coughing droplets that contain the organism), saliva, sexual secretions, blood, and urine. The disease is also developing in family pets.

If one tests positive for any of the Mycoplasmas, in order to safeguard those with whom you have close contact, it would be prudent to do the following: Wash your hands a lot, never share your food or drink with another, wash eating utensils with extremely hot water, keep your hands away from your face, avoid closed-air spaces where air is re-circulated (i.e., offices, airplanes), and use protective sexual practices.