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Dr. Kenny De Meirleir's Breakthrough Research and Recommendations for CFS Testing & Treatment by Editor ImmuneSupport.com

08-18-2006 *Kenny De Meirleir, MD, PhD, is a member of ProHealth's Scientific Advisory Board*

As described in the following article, Dr. De Meirleir reports that his research indicates Chronic Fatigue Syndrome patients can be differentiated from healthy people with 99 percent accuracy based on a test for the presence of "low molecular weight" RNase L in the blood. He says the weight of LMW RNase L molecules found in the blood of CFS patients is less than half that of normal RNase L molecules. (And this holds true for individuals with several other illnesses, including Fibromyalgia.) Increased symptom severity correlates directly with increased levels of LMW RNase L.

Additionally, though Dr. De Meirleir emphasizes that each patient's profile is unique, he says his research indicates that CFS patients tend to fall into three groups with different test profiles and treatments. Based on the results of six tests, he reports he has been able to predict patients' symptoms with 95 percent accuracy while the remaining 5 percent had overlap features.

Highlights of Dr. Kenny De Meirleir's Lecture on "Advances in ME/CFS Testing and Treatment," presented in Calgary, Alberta, on April 2, 2006

by Marjorie van de Sande

Note

Dr. De Meirleir is a world renowned researcher and is professor of Physiology and Internal Medicine at Free University of Brussels in Belgium. Dr. De Meirleir recently published his 600th peer-reviewed paper. He is co-editor of *Chronic Fatigue Syndrome: A Biological Approach*, co-editor of the *Journal of Chronic Fatigue Syndrome*, and reviewer for more than 10 other medical journals. Dr. De Meirleir was one of four international experts on the panel that developed the Canadian Consensus Document for ME/CFS. He assesses/treats 3,000 to 4,000 ME/CFS patients annually.

Normal Response to Infectious Agents

Numerous infectious agents can trigger ME/CFS. Infectious agents that invade cells release ribonucleic acid (RNA) or deoxyribonucleic acid (DNA) when they reproduce. Normally when a virus infects a cell, an enzyme called Ribonuclease L (RNase L) is activated and cuts the RNA of the infectious agent so it cannot replicate itself. The RNase L molecule also cuts the RNA of the infected cell, which triggers the cell's death and removal. Then the RNase L molecule "switches off" and remains inactive so that it doesn't damage healthy cells.

Abnormal RNase L Molecule Found in ME/CFS Patients

The normal weight of the RNase L molecule is 80 kilo Daltons (kDa). In ME/CFS patients, the RNase L molecule is being cut and weighs 37 kDa - less than half its normal weight. The low molecular weight (LMW) RNase L molecule can discriminate ME/CFS patients from healthy people, and illnesses such as Fibromyalgia, multiple sclerosis, cancer, AIDS and depression. The Centers for Disease Control and Prevention sent 100 blood samples to Dr. De Meirleir. Using the test for LMW RNase L, Dr. De Meirleir was able to identify which blood samples came from ME/CFS patients with 99 percent accuracy. These findings confirm an organic origin of ME/CFS and validate the diagnosis.

Abnormal RNase L Molecule Causes Chronic Dysfunction of the Immune System

The damaged RNase L molecule is not able to kill infectious agents and it keeps damaged cells alive. The body is unable to "switch off" these abnormal RNase L fragments, so they continue to cut the RNA of normal cells. The destructive RNase L fragment is six times more active than normal and consumes approximately 70 percent of the cells' energy (ATP). RNase L fragments destroy normal protein synthesis, enzyme production, and other vital cellular functions. They inhibit respiratory muscles, and cause hyperventilation, metabolic alkalosis, sleep disturbances, and central fatigue. There is sodium retention, low magnesium levels, and dramatically low levels of potassium. Natural killer cells, which protect against viruses and intracellular infections, are also being damaged. Thus, the immune system is in a state of chronic dysfunction.

Testing for ME/CFS

Dr. De Meirleir is co-founder of REDLABS (www.redlabsusa.com), which recently opened a lab in Nevada. This lab offers diagnostic and treatment tests for ME/CFS patients. Although each patient's profile is unique, patients tend to fall into three groups with different causes and treatments. Based on the results of six tests, Dr. De Meirleir was able to predict patients' symptoms with 95 percent accuracy while the remaining 5 percent had overlap features. Symptom severity rises in correlation to the rise in the level of LMW RNase L.

Group Profiles

Group 1: (15 to 20 percent)

This group has high levels of LMW RNase L and elastase, low levels of protein kinase (PKR) and uric acid, and low to normal levels of nitric oxide. Spinal taps indicate elevated levels of lymphocytes and proteins in the spinal fluid, and there is increased pressure upon opening the lumbar puncture.

These patients have a chronic low-grade viral infection and inflammatory reaction in the brain. Many micro-organisms are associated with this profile. Heavy metals, pesticides, and other triggers may also be involved. Approximately 20 percent of this group has low-grade Herpes Virus 6A (HHV6A) encephalitis.

The prominent feature is neurocognitive problems such as confusion and impaired concentration and memory. Fatigue originates in the brain. Pain is not prominent. Patients exhibit symptoms that have some similarities to multiple sclerosis (MS).

Group 2: (10 to 15 percent)

These patients have very high levels of LMW RNase L and elastase, high protein kinase activity, severely low natural killer cell activity, and very low serum uric acid levels.

This group of severely ill patients has bacterial infections originating from animals such as pets, rodents, ticks, etc. These patients have severe bowel problems. The gut is an important part of the immune system because 70 percent of immune cells are in the digestive tract. When a patient has leaky gut syndrome, the gut has become permeable and foreign proteins enter the blood and tissues and inflammation results. Dr. De Meirleir tests for 12 pathogenic gut bacteria.

Group 3: (60 to 70 percent)

The majority of ME/CFS patients are in this group. This profile is basically similar to Group 2, but not as severe. Generalized pain originating from dysfunction in the pain processing areas of the brain and CNS is a prominent feature. These patients have gastrointestinal infections, and bacteria are in the blood.

Some Other Areas of Investigation

Infections

Part of the immune system is activated and part is suppressed, leaving the patient vulnerable to opportunistic infections. Patients may have one or a number of infections. Serum Immunobilan tests are done to identify which ones are active. Suspect microorganisms include viruses, bacteria, and mycoplasma. A chlamydia pneumonia infection is often found in patients with chronic sinus infections. Approximately 8 to 10 percent of ME/CFS patients have infections of animal origin such as Rickettsiae, Coxiella, Bartonella, and Borrelia. Many of these infections come from pets. A small percentage come from ticks.

Heavy Metals

Exposure comes from many sources including food, insulation, air, etc. ME/CFS patients have increased sensitivity to chemicals, environmental pollutants, and heavy metals, particularly mercury and nickel. Toxins can trigger an inflammatory response.

One of the RNase L fragments has a structure that is almost identical to a protein involved in the removal of heavy metals and toxic chemical from cells. When this protein is blocked by the RNase L fragments, the cells become more sensitive to mercury. Now a tiny amount of mercury that would normally kill 10 percent of the cells can kill 50 to 100 percent of the cells.

Mycrotoxins

Fungi such as Aspergillus Niger and Candida can contribute to ME/CFS symptoms. Candida is a yeast fungal infection that changes sugars to aldehydes, a toxic form of alcohol.

Digestive Tract

Gastrointestinal problems are a serious concern in ME/CFS patients: 70 percent of the body's immune cells are found in the gastrointestinal tract. These immune cells prevent bacteria and foreign protein from entering the blood stream. When the gut becomes permeable and foreign protein enters the blood stream, elastase is produced. Elastase is the enzyme that is responsible for cutting the RNase L molecule into fragments. Elastase breaks down elastin, which gives elasticity to collagen. As a result, there is pain and a loss of elasticity in ligaments and tendons.

Peripheral Resistance to Thyroid Hormone

Most patients have normal results for common thyroid tests. However, ME/CFS patients have a much higher level of a protein that is 98 percent identical to T3, which is the active form of thyroid. Because this foreign protein can bind to T3 receptors, T3 cannot find receptors and is therefore ineffective in its role of activating cellular metabolism.

Treatment Summary

Some psychiatrists advocate that no tests or lab work be done on ME/CFS patients because testing will reinforce delusions of physical illness. Given the wealth of confirmed biochemical abnormalities, such a rationale is ludicrous. Dr. De Meirleir stressed that tests must be done in order to determine the origin of the problem. Then treatment can be prescribed to eliminate the cause. A "clean-up" of all the consequences of the problem must also be undertaken. Therapies and the order of treatments vary according to the patient's unique test profile. Treatment includes:

1. Restoring immune competence
2. Removing microorganisms
3. Restoring hormonal balance
4. Restoring intestinal flora
5. Decreasing prostaglandins and protein kinase activity
6. Removing heavy metals and toxic chemicals.

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This summary of Dr. De Meirleir's lecture, written by Majorie van de Sande, B Ed, Grad Dip Ed, was reproduced with permission from *Quest*, the newsletter of Canada's National ME/FM Action Network. Ms. van de Sande is the Action Network's Advisor and Webmaster, Conference Planning Committee.

Dr. De Meirleir describes various treatment therapies in a full-day physicians' workshop, which is available as a set of four DVDs and a CD. For information about how to order these materials, and a patient workshop in DVD format, visit the National ME/FM Action Network site, at www.mefmaction.net

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