

Multi-System Disease (MSD)

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A NEW PARADIGM

I propose use of the term Multi-System Disease to describe a family of clinical syndromes that share a similar underlying mechanism of action. These clinical syndromes would include such diseases as endometriosis, fibromyalgia, chronic fatigue, food and environmental sensitivities, some cases of interstitial cystitis, insulin resistance, hypothyroidism, allergies and autoimmune diseases, Lyme disease and associated infections to name a few. Genetic and environmental factors contribute to the specific clinical syndrome expressed.

This concept involves a paradigm shift in how we view health and disease and is a unifying theory for seemingly diverse diseases. Traditionally, in western medicine we think of disease largely as one disease with one symptom resulting from one metabolic defect which is best treated by one pharmaceutical agent. Just for this reason traditional western medicine is ill equipped for the diagnosis and treatment of MSD.

The concept of Multi-System Disease is one of process rather than specific cause and effect. There is an initial trigger that starts the decline in health and compounding factors follow, intensifying the process.

THE PROCESS

The human body has a wonderfully complex inter-relationship of organ systems. The human body acts as a buffer system, processing and eliminating both internal and external factors. MSD describes an overall decrease in functionality of multiple organ systems resulting in an overall decline in health and functionality of the person as a whole.

The initial agent or insult that starts the process can be any one of countless possibilities, but it is one that chronically stresses the body's buffering capacity. Over time, additional factors accumulate adding an increasingly large burden on the buffering capacity of the body. This is much like adding straws to the camel's back until it finally breaks.

The different organ systems which can be involved include the endocrine system (this includes all of the various hormones released by the body – estrogen, progesterone, androgens, thyroid hormone, growth hormone and the stress hormone - cortisol), the nervous system including the autonomic nervous system with the sympathetic and parasympathetic nervous system (including the hypothalamic-pituitary-adrenal axis), many aspects of the immune system, and possibly even the coagulation system.

The end result of this disease process is virtually a complete decompensation of most all of the vital organ systems and thus decompensation of the overall health of the patient. He or she can be left in a state of such low body function that performing even routine functions becomes nearly impossible.

MULTI-DISCIPLINARY APPROACH

The global but subtle nature of this disease process makes it difficult to both diagnose and treat. Our lack of understanding of the specifics of MSD and the lack of sensitivity of our medical tests adds to the difficulty in diagnosis. . The comprehensive nature of this disease process also requires knowledge in a wide range of medical conditions, traditionally transversing multiple medical specialties. Treating one aspect or dysfunctioning organ system of MSD is rarely enough to see a clinical difference in the patient. Thus, persistent treatment of multiple organ systems over time is needed prior to seeing a clinical improvement in the patient. I also believe that both traditional and alternative medicine is often needed for the successful diagnosis and treatment of MSD.

GENETIC POLYMORPHISM

A significant aspect of normal body function involves biochemical reactions. One or more substances are modified to form a new product through the biochemical reaction. Enzymes and cofactors are essential ingredients necessary for a biochemical reaction to occur. An example of a biochemical reaction is the formation of estrogen. We are beginning to understand that part of the chronic disease MSD is related to polymorphism of different enzymes and/or cofactors.

Polymorphism is characterized by a subtle change in the structure of the protein that makes up the enzyme or cofactor. A protein is comprised of a string of amino acids. There are about 20 different amino acids that the body uses. About half of these are known as essential amino acids, which the body cannot manufacture itself. This is why it is important to eat good sources of protein. A couple of the essential amino acids are difficult to get from non-animal sources and thus why some vegetarians have a protein deficiency. A person's genetic code instructs their body on which amino acids to use and what order in which to place them when making a protein.

Polymorphism means that one letter in the genetic code is changed and thus one amino acid in the hundreds that make the protein has been changed (similar to the analogy of substituting b for c and changing the word cat to bat). Amino acids have positive and negative charges. These charges cause the protein string to wad up into a ball. A change in one amino acid results in a slight change in the shape of the ball. The change in the shape of the protein results in a change in how strong the protein binds to the cellular receptor which affects how well the enzyme and the biochemical reaction works. In this way polymorphism can result in a number of diseases (e.g. an increased risk of heart disease with an elevated homocystine level which is treated with folic acid).

There is also a significant degree of polymorphism in the Cytochrome P450 enzyme system of the liver which is involved in Stage I of detoxification. This can result in a decrease in the ability of the person to detoxify and eliminate substances from their body. This decrease in their “buffering” capacity results in people being more susceptible to the chronic illness of MSD as a result of being exposed to environmental conditions that most people easily tolerate. Nutritional supplements provide the precursors or building blocks for the biochemical reaction. Taking nutritional supplements (in the right situation) can “push” the biochemical reaction harder to overcome the inefficiency caused by the polymorphism in the enzyme. This is much like turning up the pressure on a water hose providing more force. The end result is to enhance the buffering capacity of a person’s body, which is especially important in individuals who have a genetically reduced buffering capacity. This is one of the reasons that nutritional (supplements) therapy is beneficial for treatment of some diseases.

Successful treatment of MSD requires a comprehensive, sustained approach to correct as many identifiable problems as possible. This means correcting one organ system then another until the patient’s body start to regain health. This is not an easy process nor is it always successful. Hopefully, as we gain a better understanding of MSD, along with better diagnostic tests and more effective treatment, patients will have a better prognosis. Validation and acceptance will also come with a better understanding of this disease process.

ENDOMETRIOSIS AND MSD

I believe that women with advance endometriosis have MSD. This is a good example of a disease process where truly integrative approaches, including surgical, traditional medical and alternative therapies, are required for successful treatment

The endometrial implants are disease in the body which must be removed surgically. This anatomic disease is like a boat anchor that drags down the health of the individual. No matter what other treatments are instituted, the body will have to deal with the disease, since there is no non-surgical way to remove endometriosis from the body. A more detailed discussion of the surgical removal of endometriosis can be found in the description of the [EVE procedure](#).

Conversely, the endometrial implants present in the pelvis may not represent all of the ill health of the patient. Especially patients with systemic (overall body) symptoms may be suffering from MSD. This is one reason that even complete surgical removal of the endometrial implants may only treat part of the overall disease process of endometriosis patients. These patients in particular will most likely benefit from an overall approach to improve there underlying health to maximize the buffering capacity of their body and thus the ability of their body to detoxify and regain optimal health.