IPS Intractable Pain Syndrome
Research & Education Project

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AUTOIMMUNITY IN CHRONIC PAIN CONDITIONS

Part One of Three Parts

PART ONE: CAUSES ANDS BIOLOGIC MECHANISM

IMMUNITY

Immunity is a protective biological process of the body. When the body detects foreign substances such as harmful viruses, bacteria, and contaminants (called antigens), the immune system alerts special proteins (called antibodies) to recognize the harmful agents and get rid of them. This is the immune response. Antibodies are protective proteins in the globulin class of proteins that build immunity. For example, antibodies are formed after contracting an infectious disease, giving one natural immunity to getting it again. Vaccines are a good example of this process. A common situation is a person who is repeatedly exposed to pollens or contaminants in dust and develops specific antibodies to protect the body from the contaminants. When immunity is faulty, the person starts to develop symptoms with exposure and the body "reacts" with a cough or rash after exposure to an offending contaminant such as pollen, or food. They are said to be "allergic."

WHAT IS AUTO-IMMUNITY?

Autoimmunity is a biologic phenomenon in which certain antibodies, called "autoantibodies" (self-antigens) in the blood turn against the body and attack one's own tissues. Autoantibody means "self-attack." This is in stark contrast to "immunity" which means antibodies only attack an invading virus, poisons, or contaminant to protect the body. Although antibodies may attack any tissue in the body, autoantibodies seem to attack the "soft" tissues such as membranes around organs, ligaments, cartilage, and small nerves, and intervertebral discs. Another common target is the body's natural immune protection system including lymph nodes, thymus gland, mast cells, and spleen. Common clinical manifestations of active autoimmunity and the presence of autoantibodies include allergies, skin rash (urticaria), fibromyalgia, psoriasis, thyroiditis, carpal tunnel syndrome, and arthritis of the joints including the temporal mandibular, elbow, and hand joints. Serious painful and life-threatening autoimmune conditions may occur which include the kidney (glomerulonephritis), liver (hepatitis), nerves (neuropathy), spinal canal (arachnoiditis), adrenal gland, and the pituitary gland.

ORIGINAL AUTOIMMUNE DISEASES

The term autoimmune was initially derived from a class of genetic or heritable diseases that have autoantibodies and attack joints, muscles, and the membranous linings of the body organs. These diseases are well known to the public and include rheumatoid arthritis, systemic lupus erythematous, scleroderma, and dermatomyositis. These diseases were formerly called collagen diseases, but are now usually called rheumatic, or autoimmune diseases. To express the seriousness of these disorders, at the turn of last century autoimmune disease held the descriptive moniker "horror autoxicus."

AUTOIMMUNITY IN CHRONIC PAIN STATES

Research on chronic pain states has now unequivocally determined that the chronic inflammation and tissue destruction produced by a painful disease or injury will produce autoimmunity. The symptoms and sequelae can be mysterious and overwhelming. Such disorders as traumatic brain injury, Ehlers-Danlos Syndromes, adhesive arachnoiditis, post-viral, and stroke are particularly prone to the development of autoimmunity.

WHY AUTOIMMUNITY OCCURS IN PAINFUL CONDITIONS

New research shows that inflammation and tissue degeneration in a painful condition generates cellular destruction that can shed tissue particles into the blood stream. These tissue particles are considered "foreign" and unwanted by the body's immune system, so it makes autoantibodies against the tissue particles. Unfortunately, these autoantibodies are in the blood and may then attack normal tissue giving the patient unexpected symptoms, more pain, and misery.

ALERT- Every chronic pain patient must now understand autoimmunity and how to combat it

REFERENCE: Davies AL, Et al. Clinical correlates of elevated serum concentration of cytokines and autoantibodies in patients with spinal cord injury. *Arch Phys Med Rehabil.* 2007;88(11):1384-1393.

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