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Autoimmune Disease

Autoimmune Disease (AD) is an illness in which the body's immune system produces antibodies. These antibodies attack some parts of the body. They mistakenly attack and damage tissue. These antibodies are called Lymphocytes. "Immune system of the human body acts as a double-edged sword and can either heal or harm our physiological process" (Genopathy et al 14). Brenner states "The immune system mistakes some part of the body as a Pathogen. A pathogen "is a specific causative agent as a bacterium or virus of disease" (Merriam-Webster). Rose states that "evolutionary history has seen the components of the innate immune system capable of injuring tissue of the host selected against and effectively silenced" (Rose and Mackay 2014). The cells of the immune system rapidly multiply and become mutated and established in the germline. Germline is "A genetic material contained in this cellular lineage which can be passed to the next generation" (Merriam-Webster). Some of the genetic traits cause inflammation after exposure. This genetically determined deviations in inflammation are described as autoinflammatory diseases. Systemic Lupus Erythematosus (SLE) and Rheumatoid Arthritis (RA) are 2 of the more common autoimmune diseases. SLE and RA are also known as "Collagen diseases" (Funk and Wagnalls 1). The associated antibodies damage connective tissue that is made up of collagen. Lupus and rheumatoid arthritis are autoimmune diseases that have different causes, symptoms and treatments, but there is no cure.

Lupus

There are several different types of Lupus which are systemic lupus erythematosus (SLE), discoid lupus, subacute cutaneous lupus, and neonatal lupus. SLE being the more common of lupus, can be severe. It can affect different parts of the body: skin, joints, kidneys, heart, brain, lungs, and blood vessels. The symptom of discoid lupus is a permanent red rash. Patients with Lupus may get a red rash also called the butterfly rash" (U.S. National Library of Medicine 2). For patients with subacute cutaneous lupus become photosensitive and may develop sores on certain parts of the skin after being exposed to the sun. Neonatal lupus is rare and affects newborns. Newborns with lupus may have inherited certain antibodies from the mother. One of the more severe types of lupus is called lupus nephritis (LN). With this type of lupus, antibodies attack the kidneys. It is the most devastating form because it can cause morbidity and mortality in patients (Jog et al 1). Jog states that "urinary levels of HMGB-1 protein may be a non-invasive diagnostic tool to distinguish membranous lupus nephritis from all other types of lupus" (Jog et al 6). HMGB-1 levels are significantly higher in patients with lupus nephritis. Further studies will show if urinary levels of HMGB change when conditions get worse and if it can be used to determine the severity of kidney damage. Women are more prevalent to developing lupus. It is two to three times more common in African American women. Hispanic, Asian, and Native American women are at higher risk of getting lupus. African American and Hispanic women tend to have more severe forms of lupus.

Rheumatoid Arthritis

Rheumatoid Arthritis is another more common autoimmune disease. It is a progressive inflammatory disease that effects the body's joints. Inflammation causes major destruction. "It may be associated with the presence of rheumatoid factor in the affected patients" (Ganapathy et al 20). It is believed that there are certain triggering agents. "Microorganisms cause an antigen-antibody reaction in

immunologically predisposed individuals" (Ganapathy et al 20). It is believed that bacterial, viral infections, stress, surgical interventions, childbirth, stress, or trauma may be triggering factors.

There are several symptoms persons with autoimmune immune disease experience. Some of the most common symptoms are pain or swelling in joints or muscles, fever with no known cause. Patients with Lupus may get a red rash also called the butterfly rash" (U.S. National Library of Medicine 2).

Treatments

Patients with autoimmune disease get treatment from a Rheumatologist. A Rheumatologist is a doctor who specializes in autoimmune disease, diseases of muscles and joints. One of the common treatments listed in the New World Encyclopedia for autoimmune disease is therapy with steroids. Steroids suppress the immune system and help reduce swelling and inflammation of tissue. Autoimmune disease can also be treated with medications known as immunosuppressant. One of the most prescribed medicines used is called Methotrexate. Methotrexate is chemo in a pill in a very low dose. It suppresses the growth new cells and lowers the production of antibodies. Another medication that is more commonly prescribed is called Embrel. Embrel is injected subcutaneous with a syringe or using an autoinjector. Another treatment that is used to treat autoimmune diseases is called an Infusion. The patients go into a lab to get this treatment. An IV gets inserted into the arm and medicine enters the patient's blood stream. Remicade is one of the medications that is used for infusions. A procedure currently being studied is called Plasmapheresis. In this procedure, the patient's blood is run through a machine that filters out gamma globin. Gamma globin is the part of the blood that contains antibodies. (Frank and Wall New World Encyclopedia).

Causes

Years of research have been conducted, but there are no exact known causes for autoimmune disease (AD). One main theory that was explained in the New World Encyclopedia is that it causes suppression of reaction "Against the self is disrupted when viruses infect the antibody forming cells" (Funk and Wall New World Encyclopedia). Another theory is an infection called mononucleosis lymphocytes are overcome by a virus and causes antibodies to attack different tissues of the body. Much research has been conducted, but there is no exact way to pinpoint the exact cause of autoimmune disease. Possible causes are factors in environment, certain infections, or genetic susceptibility. Sex is also a factor. Lupus and rheumatoid arthritis are prevalent in women. There are different medicines and different treatments for AD, but there is no known cure.

Lupus and rheumatoid arthritis are autoimmune diseases that have different causes, symptoms and treatments, but there is no cure. The outcome of research and modern medicine only slow the progression of autoimmune disease, but it does not stop or cure it. Immunosuppressants are being used and have shown to be effective in patients with AD; however they greatly weaken the patient's immune system and increases the risk of infection.

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