

Concept map



Rheumatoid Arthritis: Explaining the Concept Map

An extremely common autoimmune disease, Rheumatoid Arthritis is usually activated by an unknown trigger. While the exact cause of Rheumatoid Arthritis is unclear, it is believed that a number of factors contribute to it. One factor is that it is a genetic trait and that certain genes are associated with the disease, however, it is not known why some individuals have the genes and yet the disease never develops. Environmental factors such as infections and chemicals may also play a role in the onset of Rheumatoid Arthritis but the exact role is unknown.

What is clear is that an unknown trigger affects the immune system so that it begins attacking itself, and specifically, the joints of the body. This begins with an increased number of white blood cells congregating in the blood vessels surrounding the synovial fluid. The white blood cells are exchanged for T-cells and B-cells. The T-cells release cytokines which increase inflammation and stimulate the B-cells to produce more antibodies. These antibodies then destroy what it recognizes as a foreign body, in this case the joints.

As the process continues the inflammatory process begins in the synovial fluid. Eventually the synovium begins to leak excessive amounts of synovial fluid which contributes to more inflammation within the joint. This continued inflammation causes thickening of the synovial fluid which ultimately leads to the formation of pannus. The cytokines released by the T-cells stimulate the pannus to then produce destructive enzymes that destroy cartilage. This further irritates the area leading to more accumulation of white blood cells and continues to contribute to the inflammatory process.

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A diagnosis of Rheumatoid Arthritis can sometimes be difficult as the symptoms of this disease are similar to other conditions. Tests that can assist in diagnosis are a Complete Blood Count to measure the amount of each blood cell. Erythrocyte Sedimentation Rate, which indicates how much inflammation there is in the body. Rheumatoid Factor, which tests for specific antibodies in the synovium that can indicate the likelihood of Rheumatoid Arthritis, and X-Rays, which can assist in determining if any joint damage has occurred.

The inflammation causes symptoms of tender, red, warm, swollen joints, fatigue, fever, and general malaise. Complications of this disease are infections, usually due to the effects of immunosuppressing medications, heart disease caused by inflammation in the body, periodontal disease, also due to inflammation, cancer, linked to some Rheumatoid Arthritis treatments, and osteoporosis. While not fatal, Rheumatoid Arthritis can sometimes shorten one's life-span.

References

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