

Your
Journal

Spinal Disease: Ankylosing Spondylitis

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UNDERSTANDING ANKYLOSING SPONDYLITIS

Ankylosing spondylitis (AS) is a rheumatic disease that mostly affects the spine. AS varies from intermittent episodes of back pain that occur throughout life, to a severe disease that, in addition to the spine, attacks the peripheral joints and other body organs. Ankylosing spondylitis is a disease of the immune system; the body's natural defense system that protects the body from invasion by foreign substances, such as bacteria and viruses. In this disease, the immune system attacks the body's own healthy cells, mistaking them for cells that don't belong. This causes inflammation in the joints and tissue around the joints, often resulting in pain, stiffness, swelling, loss of motion, and joint damage, which can become serious if not treated early and aggressively.

In a normal spinal column the vertebra are well spaced, ligament and disc tissue are healthy. During the first stage of ankylosing spondylitis inflammation takes place where the tendons and ligaments attach to bone often near a joint. Over time the area begins to heal and form scar tissue. That scar tissue calcifies and turns into bone. This leads to fusion of the joint and results in restricted motion of the spine.

Ankylosing spondylitis can damage other organs besides the joints, such as the lungs, heart, and eyes. Most of the time however, AS only involves the lower back. The eyes are the most common organ affected by the disease. Eye inflammation (iritis) occurs from time to time in one-fourth of people with ankylosing spondylitis. Iritis results in a red, painful eye with increased pain when looking at a bright light. Luckily, it rarely causes blindness but it can affect vision while the inflammation is present.

The cause of AS is unknown, however, because it is an inflammatory disease and elevated tumor necrosis factor (TNF) levels are found in involved tissues, scientists believe that TNF does play a role. There may also be genetic, environmental, or infectious factors involved in the onset of the disease. Rheumatologists estimates that nearly five hundred thousand people in the United States suffer from Ankylosing Spondylitis; men, women and children can all be effected. Symptoms of AS typically begin between the ages of 20 and 40, with 24 being the average age of onset.

Symptoms

AS is a systemic disease, meaning it can affect the entire body in some people. Ankylosing spondylitis has a wide range of symptoms, such as fever, loss of appetite, and fatigue. Other common symptoms include:

Lower back pain that is worse after sleep or inactivity, and improves after exercise, a hot bath, or shower

Pain and stiffness in the hips

Joint pain and inflammation in the shoulders, knees, and ankles

Limited range of motion in the spine and hips

Restricted expansion the chest

Neck pain

Inflammation of the eyes, which can lead to permanent damage

Diagnosis

A Rheumatologists first step in diagnosing ankylosing spondylitis is to hear a description of the patient's pain and stiffness. He'll take a thorough history of symptoms, as well as a physical examination. The physician will also want to know if patients have any family history with the disease. The patient will also be checked for tenderness over the sacroiliac joint, range of motion in the lower back and in the entire spine, and may also measure the ability to expand the chest. X-rays of the spine and affected joints may also be performed. In many cases rheumatologists can exam the slope of a patient's shoulders and back as well as their walking stride to get an idea of the severity of their ankylosing spondylitis.

Physicians may additionally do a genetic test for diagnosing the disease. The test searches for genetic cell marker called the Human Leukocyte Antigen or HLA-B27. The HLA-B27 gene by itself does not cause anky-

DIAGNOSIS & MANAGEMENT

losing spondylitis. Medical researchers do believe that the HLA-B27 gene interacts with other proteins, and alters the body's immune response. This marker is found in about 90% of people who have ankylosing spondylitis.

Treatment

Exercise and proper medication are the cornerstones in the treatment of ankylosing spondylitis. These treatments assist in relieving a patient's pain and stiffness with the purpose of maintaining posture as well as range of motion. A common treatment regimen outlined by a rheumatologist involves:

Medication: Non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen may reduce inflammation and relieve pain. This enables physical activity.

Corticosteroids are occasionally injected into particularly painful joints and used as drops for eye inflammation. Recent studies show that the new biologic medications, such as TNF- blockers, can potentially slow the progression of the disease in some patients.

Exercise: Range of motion exercises should be done daily for all joints that are stiff or have the possibility of becoming stiff. Stretching exercises focus on the soft area around the joint. The stretching is meant to ease the pain in stiff joints and muscles. The strengthening exercises should be done regularly to build full strength of the muscles and help patients maintain good posture. Endurance exercises such as walking will help raise the heart rate to improve patients over all health and fitness and give them more energy.

Good posture practices, physical therapy and other treatment options such as applying heat/cold to help relax muscles and reduce joint pain are also recommended. In severe cases of ankylosing spondylitis surgery may also be an option. Eventually, surgery may be required to replace hip and knee joints that become damaged and painful. Occasionally spinal surgery may be recommended to restore posture. A supportive social network of family and friends, a healthy diet and good restorative sleep also may positively impact how patients feel.

Prognosis

Most of the people with ankylosing spondylitis can expect to lead normal and productive lives. Regardless of the chronic nature of the illness, only a few people with AS will become severely disabled. The control of inflammation and the management of pain can reduce the daily problems that may occur with this disease. By monitoring posture and exercising on a daily basis, an individual with ankylosing spondylitis can control many of the effects of the disease.

Ankylosing spondylitis is rarely crippling and the symptoms can be managed in most people. It is important to know that each person with ankylosing spondylitis responds to treatment differently; what works for one person may not work for another. Even though a cure is not presently known, a person suffering from ankylosing spondylitis can do a lot on their own to control their symptoms.

FREQUENTLY ASKED QUESTIONS

Q. What is TNF?

A. TNF is a protein that helps regulate the inflammatory process. During normal immune response, TNF attaches to naturally occurring TNF receptors located on cells throughout the body. This "switches on" immune cells, causing them to release chemicals that can contribute to inflammation, which is one of the body's natural defenses.

Q. What exactly is the association with TNF and people with AS?

A. People with AS produce too much TNF, which overwhelms the immune system's ability to control inflammation and causes: destructive enzyme production in the joints; chronic inflammation in the area of a joint that lubricates and facilitates movement; and damage to the joint, cartilage, bone, ligaments, and tendons.

Q. Is ankylosing spondylitis the same as spondylosis?

A. No. Spondylosis is a term relating to "wear and tear" and is more common in older people; AS relates to an inflammatory condition which produces new bone and leads to fusion.

Q. What is spinal fusion?

A. Spinal fusion is a surgical procedure in which two or more of the vertebrae in the spine are united together so that motion no longer occurs between them.

Q. Is AS different in men, women and children?

A. Yes. Ankylosing spondylitis tends to affect men, women and children in slightly different ways. In men the pelvis and spine are most commonly affected. Other joints which may be involved are the chest wall, hips, shoulders and feet. For women the involvement of the spine is generally less severe than in men. The pelvis, hips, knees, wrists and ankles are the most commonly involved. For children the joints which are typically affected first are the knees, ankles, feet, hips and buttocks.

Q. What is the HLA-B27 gene?

A. The HLA-B27 is a perfectly normal gene found in 8% of the general population. The gene itself does not cause spondylitis, but people with HLA-B27 are more susceptible to getting AS.

Q. How many vertebrae and joints are there in the human spine?

A. The spine is made up of 24 vertebrae and 110 joints. The vertebrae are divided into three main sections the cervical or neck section contains 7 vertebrae, the thoracic or mid-back has 12 vertebrae and lumbar or lower back has 5 vertebrae.

DATA. RESOURCES. HOTLINES. PUBLICATIONS and MEDIA CONTACTS

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