Rheumors
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WHAT DO YOU DO WITH ALL OF THAT BLOOD, DOCTOR?
by Herbert S. B. Baraf, M.D.

If you have been a patient here at Arthritis and Rheumatism Associates, you most likely have had blood taken during one or more of your visits. We are commonly asked "what do you do with all of that blood?" I will try to answer.

Laboratory studies are frequently required for the proper evaluation and management of the patient with arthritis. These studies usually serve one of three purposes. First, to help confirm or establish a diagnosis. Second, to monitor how your medication is affecting the activity of your rheumatic condition. And, finally, some laboratory studies are helpful in monitoring for side effects from your medication.

Laboratory studies are most commonly performed on blood and urine specimens. Sometimes though, your Doctor may need to examine fluid taken from a joint. Certain circumstances require a biopsy (the removal of a small amount of tissue) to complete a diagnostic evaluation.

As discussed in prior issues of RHEUMORS, there are over 100 different types of arthritis. The arthritic conditions may be roughly divided into inflammatory, infectious, metabolic, mechanical or degenerative disorders.

Inflammatory disorders include Rheumatoid Arthritis, Lupus and Scleroderma. Their causes are unknown. In these illnesses the body's immune system has attacked the body's own tissues. They are therefore referred to as "auto-immune" diseases.

Bacterial, viral, fungal and tuberculous agents can cause arthritis. The various types of joint infections that result are called the "infectious arthritides".

Metabolic abnormalities can result in various types of arthritis. Gouty arthritis results from an over-abundance of uric acid. Other forms of arthritis may result from too much iron or calcium in the blood and tissues.

Mechanical problems, trauma, and wear and tear can result in tendinitis, osteoarthritis or back strain; all conditions commonly seen in a rheumatology practice.

TESTS USED FOR DIAGNOSIS

Antibodies are substances found in the blood that are responsible for protecting us from infections. Antibodies recognize and combine with infecting agents (such as viruses and bacteria) to eliminate them and keep us healthy. When these same antibody substances react with our own tissues they can make us sick. Antibodies that react against our own tissues are called **autoantibodies**. Blood tests used primarily for diagnosis include two important

autoantibody studies, the **Rheumatoid Factor** (RF) and the **Antinuclear Antibody** (ANA).

The RF is a substance found in the blood of 85% of patients with rheumatoid Arthritis (R.A.). Testing for RF may be helpful in establishing a diagnosis of R.A., but this test is negative in 15% of people with this disease. Five percent of normal people may also have positive tests. In certain other illnesses, too, tests for RF are frequently positive. Thus, this test helps to confirm a diagnosis only in the proper clinical setting.

The ANA test detects a group of substances found in the blood of most patients with Lupus and Scleroderma, and in a small proportion of patients with R.A. This test also may be "falsely positive" and results must therefore be considered in the context of the patient and the nature of his or her specific problems.

In patients with gout the **Serum Uric Acid** level is usually elevated. In certain forms of arthritis the serum **calcium** or **iron** levels may be too high. Muscle enzyme tests are helpful in evaluating patients for muscle inflammation. Sometimes abnormalities of thyroid function tests may explain a patient's joint and muscle pains.

The **Sedimentation Rate** (ESR) and **C-Reactive Protein** (CRP) help us to determine if a condition is inflammatory. Elevated values indicate the presence of inflammation; normal values, its absence.

Analysis of joint fluid may be very helpful in diagnosis. In osteoarthritis, cell counts in the fluid are very low, whereas with infection, gout or R.A. they are high. Characteristic crystals are present in the fluid of the patient with a gouty attack and establish the diagnosis when present.

This article is part one of a two-part series and only addresses "what we do with all of that blood" to help establish or confirm a diagnosis. The next issue of Rheumors will speak to how we use "all that blood" to monitor how your medication is affecting your condition, as well as to monitor medication side effects.

EXERCISE AND ARTHRITIS
by Robert L. Rosenberg, M.D.

Exercise has been used for centuries for relief of musculoskeletal problems. Despite controversies surrounding its use, exercise is still regularly prescribed for strengthening, conditioning, and relief of pain. Previous fears that exercise would be detrimental to joints, resulting in increased joint inflammation have not been realized. Rather, new research indicates that an appropriate and well-supervised exercise program for people with arthritis can help increase their strength and improve function. Proper exercise can supplement drug treatment of rheumatic conditions to gain and maintain functional motion.

The benefits of regular exercise include maintenance of joint range of motion, improved strength and endurance, preservation of bone calcium, improved mood, and lowered blood pressure and cholesterol levels. Muscle weakness from muscle inflammation, disuse, contractures and loss of stamina are common rheumatic conditions that will respond to exercise.

Exercise results in changes in the muscles which can be measured in terms of strength, endurance or range of motion. The specific exercise program should be chosen to produce the desired outcome safely in that particular patient. The swollen inflamed joint should not be put through excessive repetitions of range of motion against resistance. Pain persisting for more than one hour following exercises indicates excessive activity. Some pain may occur after a one to two day delay.

Water exercises may also offer benefit. The effect of gravity is removed, thus reducing the amount of force the muscle must produce to put a joint through its range of motion. Buoyancy supports the body weight thus reducing stress on the lower body joints. Warm water provides local heat and general muscle relaxation. Hot water (over 100°F) should be avoided because of its dilating effect on the blood vessels. The Arthritis Foundation sponsors many local programs of water exercises and water aerobics.

Endurance can also be improved, but patients are cautioned to have their cardiovascular system evaluated before starting on an endurance training program. Endurance activities (running, jogging, swimming, walking, cycling, and dancing) should be performed at least 15 minutes daily 3-5 times weekly. Benefits are lost rapidly if the program is not performed regularly.

Stretching to increase range of motion and lengthen shortened tendons should be preceded by use of heat. Physical therapists will use hot packs or ultrasound before starting exercises and stretching tendons. Patients can use home hot pads or a hot shower before starting their stretching exercises.

The goals of an exercise program for arthritis patients are to maintain range of motion, strengthen muscles, increase endurance, improve joint biomechanics, increase bone calcium, and improve the patient's overall function and feeling of well-being. Exercise programs, once initiated, need to be periodically adjusted to the patient's progress and disease activity.

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