ANA TEST PITFALLS

Problems in ANA Testing

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Although today's ANA test using immunofluorescence is considered the gold standard for diagnosing a number of different autoimmune disorders, its results are prone to misinterpretation. This article describes what you can expect from the current ANA test.

Antinuclear Antibodies

Autoantibodies are antibodies produced by the immune system that are directed to attack and destroy the very proteins that make up the body. Normally, the immune system produces antibodies that are directed against foreign substances, usually pollen, viruses, and bacteria. Both antibodies and autoantibodies are also known as immunoglobulins because they're made from the body's stores of immunoglobin protein.

Most autoantibodies are type G immunoglobulins and are referred to as IgG immunoglobulins or IgG antibodies. Antineutrophil antibodies, which are commonly called ANA, are a specific class of autoantibodies that react with the nucleus of specific bodily cells. ANA are present in the blood of patients with various autoimmune disorders, primarily systemic lupus erythematosus (SLE) and in lower amounts they can be sometimes seen in the normal population.

Types of ANA

In patients with positive ANA tests, additional specific blood tests, such as tests for anti-Sm, anti-RNP, SS-A, and SS-B among others are used to help diagnose the specific type of ANA that is present. These other tests are described in part II of this article, which will be published later this week.

In recent years, the ANA test has experienced many changes that have increased its specificity and sensitivity. Today, the ANA test is considered a mainstay for helping diagnose several different autoimmune disorders, including systemic lupus erythematosus (SLE) and Sjogren's syndrome. However, laboratory scientists agree that the test is still notoriously misunderstood by physicians and the results are frequently misinterpreted.

Test Interpretation Problems

The problem is that ANA is not a specific test. Because it tests for several different antibodies, cross-reactions can occur.

The highest prevalence of ANA, 90-100 percent, is seen in patients with systemic lupus or mixed connective tissue disease. Patients with Scleroderma and Sjogren's syndrome have an ANA prevalence up to 85%. And up to 45 percent of people with autoimmune
thyroid conditions or rheumatoid arthritis and up to 15 percent of people with HIV or hepatitis C can have a positive ANA test result. In addition, up to 3 percent of the normal population can have a false positive ANA test result.

**Testing Methods**

Also, testing methods vary, and the difference in sensitivity between the various procedures on the market ranges from 0 to 100 percent. Furthermore, patients with diseases associated with a positive ANA do not always have positive ANA titers. ANA levels tend to rise when symptoms flare and they tend to fall, often being undetectable, when symptoms are mild or when patients are in remission.

**FANA Test**

The gold standard for the ANA test is the immunofluorescent test, which is sometimes called the FANA test. In the test antibodies in the blood adhere to reagent test cells, forming distinct patterns that are associated with certain autoimmune diseases. Diseases with ANA directed against DNA (DNA antibodies), such as SLE, often have a homogeneous or rim pattern of nuclear staining. In inflammatory myositis, antibodies to the cell cytoplasm are more likely to be the cause of a positive ANA test.

Other autoimmune conditions associated with a positive ANA test include scleroderma, Raynaud phenomenon, drug-induced systemic lupus erythematosus, autoimmune hepatitis, mixed connective tissue disease and uveitis. In these conditions the ANA is often used to diagnose these autoimmune disorders, monitor the patient's response to therapy, establish periods of remission and monitor the disease prognosis.

Drug-induced systemic lupus, which is associated with more than 100 different medications including anti-thyroid drugs and beta blockers, resolves when the offending drug is withdrawn. This condition will be described in a separate article this month.

**Resources:**


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