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Laboratory Tests for Extractable Nuclear Antigens – Dr. David Howdijam MD

Laboratory testing for Extractable Nuclear Antigen (ENA) antibodies panel detects the presence of one or more specific autoantibodies in the blood. Autoantibodies are produced when a person's immune system mistakenly targets and attacks the body's own tissues. The attack can cause inflammation, tissue damage, and other signs and symptoms that are associated with an autoimmune disorder.

ENA are a subset of antinuclear antibodies (ANA), antibodies directed against proteins found in the nucleus of cells. Certain autoimmune disorders are characteristically associated with the presence of one or more extractable nuclear antigen antibodies. This association can be used to help diagnose an autoimmune disorder and to distinguish between disorders.

SOME AUTOIMMUNE DISEASES

Mixed connective tissue disease (MCTD) is an autoimmune disorder that causes fatigue, muscle pain, and interrupted blood flow to extremities. Systemic lupus erythematosus (SLE) is characterised by joint pain and inflammation. The disease attacks the kidneys, heart, and lungs. Sjögren's syndrome is an autoimmune disease in which the immune system attacks the tear and salivary glands. It causes dry eyes and dry mouth. Scleroderma is a disease that causes the tightening of the skin and hardening of connective tissue. Polymyositis is a connective tissue disease characterised by muscle weakness and inflammation.

THE ENA PANEL

The ENA panel is usually ordered following a positive ANA test for people who have signs and symptoms of an autoimmune disorder.

The ENA panel typically consists of 4 or 6 autoantibody tests. The number of tests performed will depend on the laboratory and the needs of the health practitioners and patients it serves. Individual ENA panel tests can also be ordered separately. A 4-test ENA panel will include:

1. Anti-RNP (Anti Ribonucleoprotein)
2. Anti-Sm (Smith Antibody)
3. Anti-SS-A (Ro) (Anti-Sjögren Syndrome A)
4. Anti-SS-B (La) (Anti-Sjögren Syndrome B)

A 6-test ENA panel will include the 4 tests listed above as well as:

5. Scl-70 (Scleroderma Antibodies)
6. Anti-Jo-1 (Antihistidyl Transfer RNA Synthase Antibodies)

HOW IS THE SAMPLE COLLECTED FOR TESTING?

A blood sample is obtained by inserting a needle into the vein in the arm. There aren't any special preparations required before the test.

WHEN IS THE TEST DONE?

An ENA panel is ordered when a person has signs and symptoms that could be due to an autoimmune disorder and had positive ANA result. Signs and symptoms of autoimmune disorders are highly variable and can involve several different areas of the body. They may include:

- Fever and persistent fatigue
- Muscle pain
- Joint swelling and/or pain
- Skin rash
- Sensitivity to ultraviolet light
- Proteinuria
- Neurologic symptoms such as seizures, depression, psychoses

- Haemolytic anaemia (low red blood cell count) or leukopenia

ENA panel is, most of the time, not ordered when a person has a negative ANA test. If no antinuclear antibodies are present, then the person is most unlikely to test positive for a specific antinuclear antibody.

The ENA panel, or one or more of its component tests, may be repeated when initial test results are negative but clinical signs persist. Testing may also be ordered when a person has been diagnosed with an autoimmune disorder and at some point develops symptoms that may be due to an additional autoimmune disorder. A health practitioner may also order testing to monitor the activity and/or progression of a known autoimmune disorder.

WHAT DOES THE RESULT MEAN?

Diagnoses of autoimmune diseases are typically based on the characteristic signs and symptoms and on results of autoantibody tests. ENA panel results help to detect and distinguish between different autoimmune disorders. Studies have suggested that each of these autoantibodies is frequently detected in people who have a specific autoimmune disorder and is less frequently detected or not detected in those without the disease.

The pattern of positive and negative results obtained from an ENA panel is evaluated in conjunction with a person's clinical findings. If someone has symptoms that suggest a specific autoimmune disorder and the corresponding ENA autoantibody is positive, then it is likely that the person has that condition.

If a person has symptoms but the autoantibody is not present, it could mean that the individual has not yet developed the autoantibody, or it may mean that the person's symptoms are due to another condition.

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