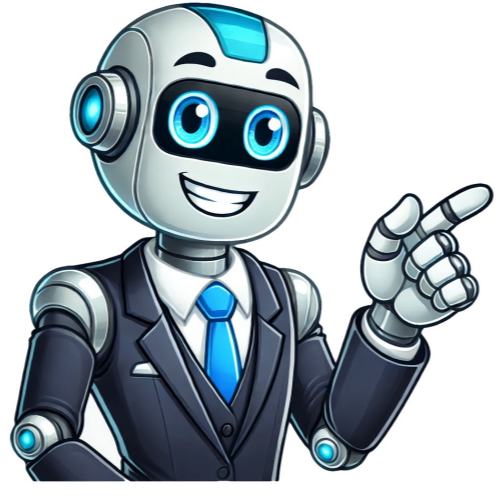


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Clinical diagnoses associated with a positive antinuclear antibody test in patients with and without autoimmune disease. *BMC Rheumatology*, 7, 24. 2020). Rupa Health. Antibodies form in the body as a response to infection. When an invader (antigen) enters the body, white blood cells known as B lymphocytes react by making special types of proteins called antibodies. Antibodies are your body's way of remembering an antigen; if it enters the body again, the antibodies will recognize it, combine with it, and neutralize it to prevent you from becoming infected. However, with autoimmune diseases such as lupus, the immune system can produce antibodies (auto-antibodies) that attack your body's cells as though they were invaders, causing inflammation, damage, and even destruction. Several blood tests can be performed to detect specific auto-antibodies and help make the diagnosis of lupus. These blood tests are not conclusive by themselves, but combining the tests with certain physical findings can help to corroborate a diagnosis. Anti-nuclear antibodies (ANA) are autoantibodies to the nuclei of your cells. 98% of all people with systemic lupus have a positive ANA test, making it the most sensitive diagnostic test for confirming diagnosis of the disease. The test for anti-nuclear antibodies is called the immunofluorescent antinuclear antibody test. In this test, a blood sample is drawn and sent to a laboratory. Serum from the blood sample is then added to a microscopic slide prepared with specific cells (usually sections of rodent liver/kidney or human tissue culture cell lines) on the slide surface. If the patient has antinuclear antibodies, their serum will bind to the cells on the slide. Then, a second antibody tagged with a fluorescent dye is added so that it attaches to the serum antibodies and cells that have bound together. Lastly, the slide is viewed using a fluorescence microscope, and the intensity of staining and pattern of binding are scored at various dilutions. The test is read as positive if fluorescence cells are observed. Usually, the results of the ANA test are reported in titers and patterns. The titer gives information about how many times the lab technician diluted the blood plasma to get a sample of ANAs. Each titer involves doubling the amount of test fluid, so that the difference between a titer of 1:640 and 1:320 is one dilution. A titer above a certain level then qualifies as a positive test result. ANA titers may increase and decrease over the course of the disease; these fluctuations do not necessarily correlate with disease activity. Thus, it is not useful to follow the ANA test in someone already diagnosed with lupus. The pattern of the ANA test can give information about the type of autoimmune disease present and the appropriate treatment program. A homogenous (diffuse) pattern appears as total nuclear fluorescence and is common in people with systemic lupus. A peripheral pattern indicates that fluorescence occurs at the edges of the nucleus in a shaggy appearance; this pattern is almost exclusive to systemic lupus. A speckled pattern is also found in lupus. Another pattern, known as a nucleolar pattern, is common in people with scleroderma. It is important to realize that even though 98% of people with lupus will have a positive ANA, ANAs are also present in healthy individuals (5-10%) and people with other connective tissue diseases, such as scleroderma and rheumatoid arthritis. Moreover, about 20% of healthy women will have a weakly positive ANA, and the majority of these people will never develop any signs of lupus. One source cites that some ten million Americans have a positive ANA, but fewer than 1 million of them have lupus. Therefore, a positive ANA test alone is never enough to diagnosis systemic lupus. Rather, a physician will order an ANA test if the patient first exhibits other signs of lupus. This is because by itself, the test has low diagnostic specificity for systemic lupus, but its value increases as a patient meets other clinical criteria. It is possible for people with lupus to have a negative ANA, but these instances are rare. In fact, only 2% of people with lupus will have a negative ANA. People with lupus who have a negative ANA test may have anti-Ro/SSA or antiphospholipid antibodies. In people with a positive ANA, more tests are usually performed to check for other antibodies that can help to confirm the diagnosis. Certain autoantibodies and substances in the blood can give information about which autoimmune disease, if any, is present. To check for these antibodies, doctors usually order what is called an ANA panel, which checks for the following antibodies: anti-double-stranded DNA, anti-Smith, anti-U1RNP, anti-Ro/SSA, and anti-La/SSB. Some laboratories also include other antibodies in their panel, including antinucleoprotein, anticentromere, or antihistone. The anti-double-stranded DNA antibody (anti-dsDNA) is a specific type of ANA antibody found in about 30% of people with systemic lupus. Less than 1% of healthy individuals have this antibody, making it helpful in confirming a diagnosis of systemic lupus. [The absence of anti-dsDNA, however, does not exclude a diagnosis of lupus.] The presence of anti-dsDNA antibodies often suggests more serious lupus, such as lupus nephritis (kidney lupus). When the disease is active, especially in the kidneys, high amounts of anti-DNA antibodies are usually present. However, the anti-dsDNA test cannot be used to monitor lupus activity, because anti-dsDNA can be present without any clinical activity. Three tests are currently used to detect anti-dsDNA antibodies, namely enzyme-linked immunosorbent assay (ELISA), the Crithidia luciliae immunofluorescence test, and a test called radioimmunoassay. An antibody to Sm, a ribonucleoprotein found in the nucleus of a cell, is found almost exclusively in people with lupus. It is present in 20% of people with the disease (although the incidence varies among different ethnic groups), but it is rarely found in people with other rheumatic diseases and its incidence in healthy individuals is less than 1%. Therefore, it can also be helpful in confirming a diagnosis of systemic lupus. Unlike anti-dsDNA, anti-Sm does not correlate with the presence of kidney lupus. Prospective studies have been performed as to whether anti-Sm correlates with lupus flares and disease activity, although evidence seems to suggest that it does not. The anti-Sm antibody is usually measured by one of four methods: ELISA, counterimmunoelectrophoresis (CIE), immunodiffusion, or hemagglutination. Anti-U1RNP antibodies are commonly found along with anti-Sm antibodies in people with SLE. The incidence of anti-U1RNP antibodies in people with lupus is approximately 25%, while less than 1% of healthy individuals possess this antibody. However, unlike anti-dsDNA and anti-Sm antibodies, anti-U1RNP antibodies are not specific to lupus; they can be found in other rheumatic conditions, including rheumatoid arthritis, systemic sclerosis, Sjogren's syndrome, and polymyositis. Anti-U1RNP has shown to be associated with features of scleroderma, including Raynaud's phenomenon; it has also been linked to other conditions, such as Jaccoud's arthropathy, a deformity of the hand caused by arthritis. Levels of anti-U1RNP may fluctuate in individuals over time, but this fluctuation has not proven to be a significant indicator of disease activity. Anti-Ro/SSA and Anti-La/SSB are antibodies found mostly in people with systemic lupus (30-40%) and primary Sjogren's syndrome. They are also commonly found in people with lupus who have tested negative for anti-nuclear antibodies. Anti-Ro and anti-La can also be found in other rheumatic diseases, such as systemic sclerosis, rheumatoid arthritis, and polymyositis, and are present in low titers in about 15% of healthy individuals. These antibodies are not highly specific for systemic lupus, but they are associated with certain conditions, including extreme sun sensitivity, a clinical subset of lupus called subacute cutaneous lupus erythematosus (SACLE), and a lupus-like syndrome associated with a genetic deficiency of a substance called complement (a system of proteins that helps mediate your body's immune response). In addition, babies of mothers with anti-Ro and anti-La antibodies are at an increased risk of neonatal lupus, an uncommon condition that produces a temporary rash and can lead to congenital heart block. Therefore, women with lupus who wish to become pregnant should be tested for these antibodies. Antibodies to histones, proteins that help to lend structure to DNA, are usually found in people with drug-induced lupus (DIL), but they can also be found in people with systemic lupus. However, they are not specific enough to systemic lupus to be used to make a concrete diagnosis. A serum complement test measures the levels of proteins consumed during the inflammatory process. Thus, low complement levels reflect that inflammation is taking place within the body. Variations in complement levels exist in different individuals simply due to genetic factors. "ANA." 9 April 2009. Lab Tests Online. 8 April 2009. American Association for Clinical Chemistry. 6 July 2009. - Link "Blood Tests." 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ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Most lupus patients are familiar with the dsDNA antibody blood test. Like the ANA result, it is a blood test most closely related to lupus. Occasionally a positive dsDNA result can be seen in other conditions. But, the presence of a dsDNA antibody is considered specific for a diagnosis of lupus. As there are multiple ways a lab may detect a dsDNA, there still remains the possibility of a false positive, but a positive dsDNA result warrants a trip to the rheumatologist. (Reminder = "false positive" simply means the test is positive, yet the patient doesn't have the condition associated with that result) Patients often are referred to a rheumatologist with a notebook full of labs, mostly of all varieties of antibodies and it is overwhelming. The dsDNA antibody is an antibody against the double stranded DNA that is found in all of our cells. By definition, it is considered an "anti-nuclear antibody." It is very rare to have a negative ANA result yet a positive dsDNA antibody. It is most closely related to Lupus but it can also be seen in Sjogren's Syndrome or Scleroderma. Understand what your +dsDNA means When a diagnosis of lupus is established, the presence of a dsDNA gives the doctor much needed information. The development of kidney disease in lupus, something that needs to be caught early in order to avoid any permanent damage, is closely tied to the presence of a dsDNA. It is also a blood marker that tells the doctor if a patient's lupus is active. As opposed to the ANA or RF, the dsDNA is repeated, usually at every rheumatology appointment. The dsDNA antibody level goes up and down according to the lupus activity; high dsDNA is related to high lupus activity and low levels with low activity. Because the dsDNA antibody has been implicated in the development of lupus, striving for low or negative dsDNA level makes common sense. But rheumatology and common sense rarely live together! And just like most things in Rheumatology, there are always exceptions. The text books teach us that a high dsDNA indicates high lupus activity. But patients aren't text books and we need flexibility when dealing with actual lupus patients. There are plenty of times when patients will, by all accounts, be doing well, yet still have an elevated dsDNA. What do we do then? Each rheumatologist will likely approach this differently, but I always like to individualize the treatment based on the patient. The patient's personal history with lupus and their health goals become a part of the conversation before blindly increasing or adding medications simply because a lab is abnormal. The opposite is true as well. Far too often, lupus patients are told they are "fine" because labs, such as the dsDNA, are normal. Yet the patient may still be suffering from more subtle, yet still disabling, symptoms, such as fatigue, pain and brain fog. Labs such as the dsDNA antibody test are tools used to better understand an individual's lupus. It can help us examine their risk for complications such as kidney disease and alert us to when a flare may be imminent. But it is simply one tool rheumatologists have and appropriate emphasis should be placed on it. In good health, Dr. Ortiz Facebook LinkedIn Twitter Email Copy Link