How Biomarker Testing Improves RA Treatment

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Rheumatoid Arthritis Biomarkers

Biomarker testing has been used in healthcare for the last decade, mainly in cancer treatment. When treating cancer, doctors use biomarker testing results of proteins, genes and other molecules to direct their approach to fighting cancer growth. But biomarker testing has also found its way to other fields of healthcare, including the treatment of autoimmune disorders like rheumatoid arthritis (RA).

What Is a Biomarker?

A biomarker is any type of measurable information from the body that can determine the activity of a disease or disorder, the response of medication, or any biological process.

An example of a common biomarker is heart rate. Heart rate can be accurately measured and used to figure out if a person is anxious or afraid. Blood pressure is another biomarker that can indicate if someone is agitated or under stress.

Glucose (blood sugar) levels within the blood is another biomarker. Glucose levels can be found using a simple blood test, and this can tell a person whether or not they need to eat or administer insulin to themselves.

Why Are Biomarkers Important?

Biomarkers are significant in healthcare and medicine because they can help determine what the next step should be for each individual person, making treatment plans personalized. Rather than using a cookie-cutter approach to treatment, biomarker evidence provides some direction regarding what to do next; this makes treatment much more effective and efficient.

Biomarkers are vital to drug and health research. Results on biomarker blood tests can tell us whether a substance is useful and if the body can tolerate it as a medication treatment, leading to the discovery of new medications.

What Is Biomarker Testing?

Biomarker testing uses biomarkers to help guide health professionals to the right path forward. Biomarker testing allows healthcare professionals to individualize treatments for each patient, depending on what their biomarker test results are. Most biomarker tests are blood tests that look for information such as protein levels or amounts of antibodies in blood-work.

Rheumatoid Arthritis

RA is the most common autoimmune disorder, affecting somewhere between 0.5% and 1% of the population. RA affects the hands and feet, though there are times when other areas of the body are impacted. RA impacts both sides of the body; for example, if the left-hand experiences pain from RA, the other hand will also experience some pain.

RA can occur at any age, though most people who are diagnosed are 60 years of age or older. The symptoms start as stiffness and swelling, which then causes pain. RA can eventually become debilitating, making the performance of everyday activities painful and challenging.

Diagnosing RA accurately means getting the appropriate lab work. Several rheumatoid arthritis biomarkers — **the erythrocyte sedimentation (sed) rate**, the **C-reactive protein (CRP)** and **rheumatoid factor (RF)** — can confirm the presence of rheumatoid arthritis. These tests are significant because the symptoms of RA can be mistaken for those of other disorders. Also, the treatment options for RA may require medication that other disorders do not. Confirming a diagnosis for RA is the first step to proper treatment.

Though these biomarker tests help confirm the presence RA, more specific biomarker tests can make treating RA more effective.

Biomarker Testing for Rheumatoid Arthritis Patients

Because RA is an autoimmune disorder (where the body's immune system fights itself), many of the biomarker tests used for RA monitor for the presence of antibodies. Rheumatoid arthritis biomarkers are used to target RA and reduce symptoms by evaluating antibodies throughout the course of the disorder.

Here are a few of the more specific biomarker tests used to determine treatment for RA:

Polyglutamate Testing

Polyglutamate testing measures how effective Methotrexate medication is on RA for a specific individual.

Methotrexate is one of the most prescribed and effective drugs for RA. During treatment, Methotrexate converts to polyglutamate. More than a third of patients do not respond to Methotrexate, so the amount of methotrexate polyglutamates in the blood may show whether Methotrexate is effective or if another type of medication is needed.

Vectra DA: A Multi-Biomarker Test

Vectra DA measures 12 biomarkers of RA to predict joint damage.

Vectra DA is the first test that measures many rheumatoid arthritis biomarkers all at once. The combination of biomarkers enables healthcare professionals to map out future progression of RA and direct treatment to prevent RA from getting worse.

Anti-CCP2 Test

The Anti-CCP2 Test is used to target and predict RA disease progression accurately.

Antibodies that target cyclic citrullinated peptides (CCP) appear in the early stages of RA, before symptoms even appear. Being able to diagnose RA very early on can lead to early treatment and the prevention of symptoms.

Anti-MCV

Anti-MCV detects antibodies present in the beginning stages of RA.

This test looks for antibodies which fight against mutated citrullinated vimentin, or MCV. MCV is a protein that

causes RA to worsen. The MCV test adds to the RA treatment early on. It helps to differentiate between RA and other arthritis conditions.

Biomarker Testing and the Future of Medicine

The use of biomarkers has increased significantly in healthcare. Biomarkers help make accurate diagnoses, manage RA symptoms and avoid unnecessary treatments.

In the future, biomarker testing may heavily influence treatment choices for all diseases. For RA, where many medications are costly, we may see biomarker testing become the best practice in determining RA treatment.