The Role of Antibody Testing in Combating the Spread of COVID-19

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As the coronavirus pandemic drags on, governments and people around the globe are trying to stay safe while also figuring out what work, school, and socializing will look like with COVID-19 still spreading.

For public health experts to begin to understand whether regular interactions between people are safe enough to resume, they will need to know if people who were infected with SARS-CoV-2, the coronavirus that causes COVID-19, have developed some immunity to the virus.

Such immunity can theoretically be detected using what is known as a serological or antibody test, which looks for proteins in your blood that your body produces after it has been infected with the virus. This test is different from the diagnostic tests that identify an active infection by looking for samples of viral genetic material, usually by sticking a swab far up the nose.

Here is what you should know about antibody tests for the novel coronavirus.

Testing Methodologies:

There are two distinct testing methodologies at the forefront of SARS-CoV-2 testing: molecular testing and serology.

- **Molecular testing** is used to detect SARS-CoV-2 in respiratory specimens of patients suspected of having COVID-19. This is the only testing currently available for diagnosing infected patients. It also plays a critical role in diagnosing infectious individuals early in the course of the disease to enable them to isolate and prevent the spread of the virus to others.

- **Serology, or antibody testing**, is the latest entry in the COVID-19 testing landscape. Serology testing is used to detect antibodies against SARS-COV-2 in the blood and provides evidence that the patient has been exposed to the virus.

Serology testing alone is not recommended for COVID-19 diagnosis due to the kinetics of infection. In most individuals infected with SARS-CoV-2, we would expect to see a peak in viral replication that coincides with the development of symptoms. This is followed by the development of antibodies several days later (known as seroconversion). Testing a patient too early in the course of infection may yield a false-negative result because the patient has not yet seroconverted. Moreover, even when patients have seroconverted, they still may be infectious and continue to shed virus.

Isotypes of antibodies

There are different isotypes of antibodies, including IgM, IgA, and IgG. Among these, IgG is the best marker to indicate exposure to SARS-CoV-2. The presence of IgG indicates that the patient has been infected with the virus and has mounted an immune response against it. Although the immune response may protect against reinfection, this has yet to be established.

What can and can't they do?

In the context of the COVID-19 pandemic, some researchers argue that deploying antibody tests more widely in communities could ultimately help ease the restrictions put in place to slow the spread of the virus.

Specifically, a better understanding of how many people have recovered from COVID-19 would enable specialists to estimate more accurately the dynamic and rate of the virus' spread. This would help them design better strategies to safeguard the community and possibly also allow for more freedom of movement.

Meanwhile, antibody tests could play an additional role — confirming who qualifies to donate convalescent plasma, a component of blood that contains antibodies.

*The article has been contributed by **Mr. Amol Naikawadi, Joint Managing Director and Preventive Healthcare Specialist, Indus Health Plus***

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