Research results show the importance of COVID vaccination and a personalised approach for RAIRD patients

A study published in the Lancet on Thursday has revealed that blood tests can predict the severity of Covid-19 infection in Rare Autoimmune Rheumatic Disease (RAIRD) patients, which could lead to individualised approaches to vaccination.

The MELODY study was supported by a collaboration of research charities and medical funders including RAIRDA member charity Vasculitis UK, to ensure better representation of at-risk groups in pandemic research.

MELODY is the largest research study to date in people with rare diseases, including 6,516 people living with a RAIRD.

Key findings from the study:

- COVID-19 antibodies provide strong protection for people with RAIRDs.
- Regular vaccinations are crucial for people living with RAIRDs to maintain immunity.
- Antibody tests can guide personalised prevention plans.

How COVID-19 vaccines helped people with RAIRDs during the Omicron wave: the MELODY* Study

Background on the study:

People with RAIRDs, like lupus, vasculitis, scleroderma, and myositis, are more likely to get seriously ill from COVID-19. This is because their immune systems don't work normally, and people with these conditions often take medications that weaken their immunity.

In the UK, people living with RAIRDs were offered three initial COVID-19 vaccine doses and regular boosters. The MELODY study looked at whether people with RAIRDs who didn't develop detectable COVID-19 antibodies after receiving three or more vaccines were at a higher risk of catching the virus or experiencing more severe illness, during the Omicron wave.

How the study worked:

From February to June 2022, 6,516 people with RAIRDs across England joined the study. They had all received at least three COVID-19 vaccine doses. Participants did at-home antibody tests, filled out health surveys, and their health was tracked for six months using NHS records for COVID-19 infections, hospitalisations, and deaths.

What the study found:

- Out of the 6,516 participants with RAIRD, 37% had lupus, 21% small vessel vasculitis, 13% systemic sclerosis, 9% large vessel vasculitis, and 7% had myositis. 13% did not specify which RAIRD they had.

*Mass Evaluation of Lateral Flow Immunoassays for the Detection of SARS-CoV-2 Antibody in Immunosuppressed People Study

- Many (71%) were on treatments that suppress their immune system, and 42% were on steroids.
- After at least three vaccine doses, 86% of participants had COVID-19 antibodies.
- People on certain medications—like anti-CD20 drugs (e.g. rituximab), cyclophosphamide, or mycophenolate—were less likely to have antibodies. Steroids also reduced antibody levels, but methotrexate and azathioprine didn't seem to affect them.

Over six months:

- 1,024 participants caught COVID-19. Younger people and those living with children had more infections.
- Having COVID-19 antibodies reduced the risk of infection by 43%.
- 140 participants were hospitalised with COVID-19. Antibodies lowered the risk of hospitalisation by 68%.
- Older participants and those with other health issues were more likely to be hospitalised, but antibodies still helped protect them.
- There were only four COVID-19-related deaths.

What does this show us?

COVID-19 antibodies provided crucial protection for people with RAIRDs, reducing their chances of getting infected or seriously ill during the Omicron wave.

COVID antibodies decrease over time since your last vaccine; and the study shows that having antibodies reduces your chance of infection with COVID by half, and of hospitalisation with COVID by two-thirds.

Therefore, it is key that people with RAIRDs get their booster COVID vaccines, to increase their chances of having COVID-19 antibodies.

Further, we know that some people who are immunosuppressed remain at risk of serious illness from COVID-19. The study shows that a simple blood-test which can be deployed at scale, would enable those at greater risk to be identified, and have individual support directed to them, to protect them from COVID-19.

This is a summary of the results relevant to rare autoimmune rheumatic diseases from **Impact of SARS-CoV-2 spike antibody positivity on infection and hospitalisation rates in immunosuppressed populations during the omicron period: the MELODY study**

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(24)02560-1/fulltext

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