

Vaccines could mitigate the effects of long-term Covid

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A systematic analysis of patients affected by Covid shows that some survivors of the disease suffer from numerous consequences within 6 months of infection and are at higher risk of death. Preliminary data suggests, however, that Covid vaccines could reduce the complications that arise from these long-term Covid cases.

One of the most remarkable characteristics of the coronavirus that causes COVID-19 is its ability to affect virtually every organ in the human body. This pleiotropic action is not only due to the virus itself, but above all to the exaggerated inflammatory response that is triggered by the infection.

In people affected by severe forms of the disease, we observe the development of extreme inflammatory conditions, which cause failures in several other vital organs (heart, kidneys, brain) and considerably increase the risk of death.

COVID LONG

As the pandemic progressed, it was quickly noticed that some people affected by Covid managed to overcome the infection, but nevertheless continued to have persistent symptoms (fatigue, cough, breathing difficulties, etc.) several months later after they have been healed.

This phenomenon, known as Long Covid, has enormous repercussions on the quality of life of patients and is set to become a significant public health problem, given the millions of people who have been infected with the virus worldwide.

American scientists have examined the Department of Veterans Affairs medical database to better understand the extent of damage caused by the virus in these long-term Covid cases (1). By comparing the medical records of 73,435 patients who had been diagnosed with Covid to those of 5 million veterans who had not been infected with the virus, the researchers noted an extraordinary array of pathophysiological sequelae that can affect Covid survivors more than 6 months after infection:

- **Respiratory system:** persistent cough, shortness of breath and lower than normal blood oxygen levels;
- **Nervous system:** stroke, headaches, memory problems and abnormal senses of taste and smell;
- **Mental health:** anxiety, depression, sleep problems and addictions;
- **Metabolism:** development of diabetes, obesity and high cholesterol;
- **Cardiovascular system:** myocardial infarction, heart failure, arrhythmias, blood clots;
- **Gastrointestinal system:** constipation, diarrhea and oesophageal reflux;



- **Renal system:** acute renal damage;
- **Skin:** irritation, hair loss;
- **Musculoskeletal system:** joint pain, muscle weakness;
- **General health:** malaise, fatigue, anemia.

Overall, the data collected shows that the risk of mortality within 6 months of infection was increased by approximately 60% in Covid survivors compared to the general population, which corresponds to approximately 8 additional deaths per 1,000 people.

This increase in mortality is even more striking among infected people who have been hospitalized, with 29 additional deaths per 1,000 people. This is about 50% higher than for influenza, which again shows how much more dangerous Covid-19 is than seasonal flu.

ADVANTAGEOUS VACCINES

In the United States, where the vaccination campaign is well underway, several people suffering from long-term Covid have reported experiencing a noticeable improvement in their health after being vaccinated.

This benefit of vaccination was also seen in a small UK study (only 44 patients) that was submitted for publication (2), but this phenomenon remains unexplained as of yet. We know that several symptoms associated with long-term Covid are caused by a persistent imbalance in immunity, for example in the inflammatory response.

It is therefore possible that the strong immune response generated by the vaccination succeeds in supplanting this inadequate immunity and somehow biochemically reset the response to the virus, which regulates immune function and allows a return to normal.

Research over the next few months should answer this question, but, in the meantime, it is important to mention that all survivors of Covid-19, whether they suffer from sequelae or not, have an interest in receiving at least one dose of the vaccines that are currently at our disposal to maximize their immunity to the coronavirus, in particular against the variants currently circulating in several regions of the world.

- (1) Al-Aly Z et coll. High-dimensional characterization of post-acute sequelae of COVID-19. Nature (Online ahead of print, April 22nd 2021)
- (2) Arnold DT et coll. Are vaccines safe in patients with Long COVID? A prospective observational study. medRxiv, (Deposited online, March 14th 2021)