

# On the End of a Nightmare (COVID-19). The Role of the Immune System

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## ABSTRACT

After the Chinese epidemic of Wuhan and the global pandemic that followed, the spread of the coronavirusCoV-SARS-2 has finally come to an end. Already declared the end in the United Kingdom on 19 July 2021, which had primarily started vaccinations on 8 December 2020, aimed in particular at &quot;over&quot; 80 and frail subjects, the whole world has aligned, in particular also taking into account the therapies oral and monoclonal antibodies with a virus that while maintaining its contagiousness has reduced in its virulence (1). Finally, particular importance is given to the natural infection from COVID-19 and to the immune response with the vaccination exemption due to the risk of thrombi due to genetic mutation and antibody overload.

**Keywords:** COVID-19, subvariants, immune system, vaccines, VITT

## INTRODUCTION

One million Americans have died of COVID-19 (May 17, 2022 – Jons Hopkins University). The first deaths from January 2020 to May 2020 concerned one hundred thousand subjects. Subsequently, in January 2021 alone, there were one hundred thousand deaths in one month. 75% aged 65 and over, especially blacks, Hispanics and Native Americans, therefore the white population (Table 1).

According to current information, the inoculated vaccines, the use of masks and social distance have saved millions of lives.

## METHODS

A messenger RNA vaccine can alter cellular DNA by transcribing viral sequences integrated into the genome by a reverse transcriptase of cells or an HIV, these DNA sequences can be integrated into the cellular genome and their expression was induced by a COVID infection -19 or cytokine exposure in cell cultures, suggesting a molecular mechanism for reverse-transcribed and integrated COVID -19 in patients (2). The authors from Boston, USA explained on the basis of this action why some people were still positive even after three to four weeks.

On the American website VAERS (Vaccine Adverse Event Reporting System) we read how from the extrapolation of the data, it emerges that the COVID-19 vaccine preparations represent 51%

of all reports of death in the 30 years of existence of the database: the values were obtained only after nine months of their use in the population.

## RESULTS

According to Dr. Kristin Moffitt , an infectious disease specialist at the Boston Children's Hospital, it takes a couple of weeks after vaccination to develop an immune response that remains valid for at least two months. In the event of a negative test, but with persistent symptoms of sore throat, widespread pain and fever, it is advisable to stay at home. By now masks are not required for most trips. Air quality is better in airplanes than in trains or buses (3).

Currently in addition to COVID-19 influenza and respiratory syncytial viruses are affecting many people now.

According to Moffitt , it would be a precautionary reason to still use the masks during the trip to unknowingly avoid the spread of the virus, but this is useful for those who present the symptoms described above. This is especially important if you come into contact with immunocompromised or otherwise frail individuals (4).

With the FDA and CDC's approval of bivalent vaccines, it appears that we finally have an advantage with COVID-19 vaccines, as they are able to neutralize circulating BA.4/BA.5 strains (5). While there are no other transmissible variants still in circulation. The CDC recommends a six-month interval after a previous booster or natural infection because the new vaccines meet a population that has already had a post-vaccination infection with the omicron variants this year and therefore have strong ongoing protection in regarding reinfection with BA. 5 (6).

According to recent studies a booster now protects for at least six months. Another study showed that antibody levels stabilize six to nine months after vaccination for subjects with or without previous infection.

## DISCUSSION

Memory B cells also improved after vaccination demonstrating to maintain a reactivity towards all viral variants including omicron, for at least 9/10 months after the first series of two doses, supplemented by a positive response towards the third dose of recall. Another study showed that memory B cells continue to mature for about six months after vaccination or natural infection.

Immunity B cells like T cells to COVID vaccines have provided protection against severe disease and have not led to increased hospitalization levels since BA.5 became dominant last summer. The benefits of this degree of population immunity can be extrapolated from a recent study in Portugal which, in contrast to the feared problems for a BA reinfection. 5, demonstrated that infection with the omicron strains BA. 1/2 provides 75.3% protection against BA reinfection. 5. It is essential for public health to protect those most at risk, i.e. the elderly and the immunocompromised. This particularly affects the second half of Americans who have not had a booster vaccine dose and who can therefore do the booster with omicron.

The use of convalescent plasma of COVID-19 reduces the incidence of hospitalization and mortality when a sufficient dose is given to the patient with recent onset of symptoms or to those who have not had a sufficient antibody response after infection with SARS -CoV-2 (7). Clinical trials that have shown negative results have often included patients who were either too ill to benefit from convalescent plasma or had too low an antibody level (8).

In the end Sullivan et al (9), found the efficacy of convalescent plasma to be similar to that of monoclonal antibodies although the latter are likely to be bypassed by the virus. In this context, high titer convalescent plasma obtained from vaccinated subjects or hospitalized donors should be comparably resistant to avoid viral bypass (10).

Mucosal IgAs can immunize against respiratory viruses and therefore there is a potential protective effect of these antibodies against omicron infection and viral replication; in fact, mucosal IgAs protect against the omicron infection of CoV-2 viral spikes (11). The booster vaccine is effective with regard to the severity of the omicron variant, especially if specific for the variant. The reduction of vaccine protection and natural immunity are affected by the specific recall for the new variants. Specific neutralizing antibodies are superior for vaccines against bivalent omicrons (12). The second dose of vaccine for SARS-CoV-2 facilitates myocarditis: the evidence for heart damage and inflammation of the myocardium was provided by Cristina Basso, professor of cardiovascular pathology at the University of Padua (13).

### CONCLUSION

An important observation made in Argentina is reported by R. Herrera - Comoglio of the National University of Cordoba and by S. Lane of the Institute of Pharmacovigilance of Sciences of Southampton (United Kingdom) who studied thrombocytopenia and virus-induced immune (14) thrombosis (Vitt) after administration of Sputnik V vaccine (as known with administration of adenovirus 26 vector virus and booster after 21 days with adenovirus 5). Other studies were carried out by AstraZeneca (Oxford), by Johnson and Johnson (Janssen, USA) and by Consino Biologics, Beijing, demonstrating Vitt in 0.1 cases per million subjects for Sputnik (about 20 million vaccinated), while the incidence is 0.37 cases per million vaccinated with other viral vectors.

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**Table 1**

| SPREAD AND MORTALITY RATE OF THE MAIN VIRUSES IDENTIFIED SINCE 2000 |                   |                   |                   |         |                |                                    |
|---------------------------------------------------------------------|-------------------|-------------------|-------------------|---------|----------------|------------------------------------|
| Note                                                                | VIRUS             | Identified in the | Established cases | Deaths  | Mortality rate | Distribution (number of countries) |
| 1                                                                   | SARS CoV          | 2002              | 8.096             | 774     | 9,60%          | 29                                 |
| 2                                                                   | H1N1 (swine)      | 2009              | 1.632.258         | 284.500 | 17,40%         | 214                                |
| 3                                                                   | MERS CoV          | 2012              | 2.494             | 858     | 34,40%         | 28                                 |
| 4                                                                   | H7N9 (avian)      | 2013              | 1.568             | 616     | 39,30%         | 3                                  |
| 5                                                                   | Ebola West Africa | 2014              | 8083              | 3909    | 63%            | 6                                  |
| 6                                                                   | nCoV-2019         | 2020              | 121.734           | 4.382   | 3,60%          | 121                                |