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The EU Digital COVID Certificate: Should We Differentiate Between Previously Infected and Fully Vaccinated People?

Certificado Digital COVID da EU: Devemos Distinguir as Pessoas Previamente Infetadas das que Têm Vacinação Completa?

Keywords: COVID-19; COVID-19 Vaccines; European Union; Mass Vaccination; SARS-CoV-2**Palavras-chave:** COVID-19; SARS-CoV-2; Vacinação em Massa; Vacinas contra COVID-19; União Europeia

The EU Digital COVID Certificate will be a proof that a person has been vaccinated against COVID-19, received a negative test result, or recovered from COVID-19. The EU has set the maximum validity period of the certificate of recovery at 180 days. There is no maximum validity foreseen for vaccination certificates.¹

What is the evidence behind this decision?

Previously infected individuals have very low risk for reinfection at least six to eight months after the primary infection, as observed both in healthcare workers (HCW) and in the general population. And those who get infected are mainly asymptomatic or have non-severe symptoms.²⁻⁵

A study performed in England with a population of HCW has found that those with previously positive SARS-CoV-2 antibodies had a 99.8% lower risk of new infection compared to participants with previously negative serology, when restricting reinfections to confirmed and probable cases.⁴

The protection period conferred from previous infection is being extended as new evidence is available with the progression of the pandemic. A study with HCW in Ohio suggests that SARS-CoV-2 infection may provide protection against reinfection for 10 months or longer.⁵ More recently, Turner *et al* have demonstrated that SARS-CoV-2 infection induces long-lived bone marrow plasma cells and memory B cells in humans.⁶

The progressive decay in antibody titers that has been documented is observed in other infections after vaccination and does not necessarily mean a waning of protection to reinfection. T-cell mediated immunity (T-CD4+ and T-CD8+ specific) seems more important than neutralizing antibodies for the clinical impact of the infection.⁷

The protection conferred was observed regardless of the clinical severity of the primary infection.^{4,5} In fact, the immunological priming is the same. Both symptomatic and asymptomatic previously infected people showed a similar, immediate and robust antibody production after a subsequent administration of one vaccine dose.⁸

We already have good immunologic and clinical evidence of long-lasting protection against reinfection in patients who recovered from infection.

What do we know about vaccinated people?

The best results published regarding vaccine effectiveness were those of Israel, with a follow-up period of seven days to three months after the second dose of the mRNA BNT162b2 vaccine. The protection was 92% against infection and 94% against symptomatic infection.⁹

Regarding efficacy against variants of concern (VOCs), no better protection is expected to be achieved by people who had been immunized through vaccination than by those who recovered from infection, since the immunological response is directed towards multiple viral antigens and not just the spike protein.^{4,5} In fact, a recent retrospective cohort study from Israel showed that the immunity acquired through infection conferred a better and longer lasting protection against infection, symptomatic disease and hospitalization caused by the Delta variant of SARS-CoV-2, compared to the BNT162b2 two-dose vaccine-induced immunity.¹⁰

The answer to the question whether the EU Digital COVID Certificate should differentiate between previously infected and fully vaccinated people should rely on the fact that, until now, previous infection has proved to be better and longer lasting than the vaccines.

So why decide in the opposite way?

PROTECTION OF HUMANS AND ANIMALS

The author declares that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in 2013.

DATA CONFIDENTIALITY

The author declares that he followed the protocols in use at their working center regarding patients' data publication.

COMPETING INTERESTS

The author has no conflicts of interest.

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