



Reinfection with SARS-CoV-2: a challenging event

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Dear Editor

We appreciated the article by Pecho-Silva et al. about the first report of repeated SARS-CoV-2 infection in Bolivia, recently published in this new medical Journal (1). On July 2020 a previously healthy middle-aged health-worker male presented with mild symptoms of COVID-19, and a SARS-CoV-2 RT-PCR confirmed this diagnosis. He successfully used azithromycin, ivermectin, ibuprofen, and acetaminophen 5 days. Three and 4 months later, RT-PCR and IgM/IgG controls were negative, respectively. On December he had manifestations strongly suggestive of COVID-19 infection; and RT-PCR and IgM were

positive, while IgG persisted negative confirming a reinfection. The authors discussed the role of these findings consistent with reinfection after a relatively short period, affecting a 47-year-old patient without any classical risk factor; and commented on the limitation of the lack of genetic sequencing of the samples (1). Commonly, sophisticated laboratory resources are hardly available for daily practice, and their work help to know the effective duration of immunity against SARS-CoV-2.

The Bolivian patient did not undergo any dose of recommended COVID-2 vaccine. However, even after complete vaccination, reported cases of COVID-19 have increased, either by the initial strain or some of emerging variants of the SARS-CoV-2 virus (1-6). So, the protocol of preventive measures must be strictly followed also by vaccinated. Serological tests plus RT-PCR enhance the sensitivity to detect active infections and to evaluate the recovery stage. Reductions of IgM level may be observed as conversion of virus nucleic acid to negative occurs; while persistent IgG levels are fundamental for immune memory and prevention of reinfections (2-4). Antibodies are produced in the first week of infection and have a peak in up to 3 weeks; are necessary for the virus elimination and prevention of reinfections, but moderate-to-higher levels of IgM and IgG often reduce 2-3 months after the onset of disease (2-4). The duration of IgG against SARS-CoV-2 virus is not established (3,4); but negative detections have been 14.2% and 25% at 3 and 6 months of discharge, respectively (2). Worthy of note, the reinfection of the patient herein commented occurred approximately 3 months after the cure of the first episode, when the specific IgG test was negative. The duration of IgG against SARS-CoV-2 virus is not established (3,4); but negative detections have been 14.2% and 25% at 3 and 6 months of discharge, respectively (2). Some authors reported more frequent reinfections in patients younger than 18 years, but there are few studies including discarded individuals with long follow-up durations (2).

The current number of reinfections is uncertain due to the lack of specific research, but in January 2021 it was estimated in approximately 31 people in China (6). Besides underestimated reinfections and infections by emerging variants, there are concerns about a re-positivity due to the virus survival in immune-privileged sites (1-6). The described sites include the placenta, pancreas, central nervous system, and eyes; and patients can test re-positive or persist longstanding positive for SARS-CoV-2 (5). Reinfections may occur even with concomitant neutralizing antibodies detection, and sometimes present more severe manifestations than the previous episode of disease (6). Another concern is on antibody-dependent enhancement, which means a higher virus invasion favored by antibodies and causing more severe inflammatory responses (4). The emerging variants more

transmissible may also cause reinfections of more severity; phenomena that constitute additional challenges in the scenery of this pandemic and can involve the effectiveness of current vaccines using the early SARS-CoV-2 strain (6). The commented studies aim to highlight the need of consensual discharge criteria, and homogeneity of guidelines related to the longstanding follow-up of recovered patients.

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