HEMATOLOGY, TRANSFUSION AND CELL THERAPY

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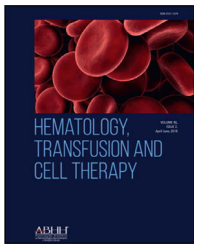

Letter to the Editor

Prolonged viral shedding of SARS-CoV-2 in patients with acute leukemia

Dear editor,

We reported the 21-plus days isolation of *severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)* in seven patients with a diagnosis of *acute leukemia* and confirmation of *coronavirus disease (COVID-19)* admitted to the Hematology Department of the Guillermo Almenara Irigoyen National Hospital (Lima, Peru), between October 2020 and February 2021, in which none of the subjects developed the severe or critical sickness (Table 1). The diagnosis was made from an antigenic test or reverse transcriptase polymerase chain reaction (RT-PCR), which were taken through a nasopharyngeal swab that was performed as a prerequisite to the initiation of specific treatment for the underlying disease.

Most of them were adults, and had a diagnosis of acute lymphoblastic leukemia in remission and were waiting their next course of chemotherapy. Viral RNA was isolated for more than 82 days after initial diagnosis (from 21 to 82 days). The case with the longest positive test time corresponded to the patient with disease relapse, who developed a moderate type of COVID-19. At the date of the report, six patients were alive and one died due to the hematological disease activity.

The first reported case of SARS-CoV-2 infection in Peru was made on March 6, 2020. As at the day August 10, 2021 the country registered a total of 2 127 034 confirmed cases, 197 102 deaths and a fatality ratio of 9.27%; being one of the most affected countries in Latin America and having reported the highest fatality rate in the world.[1]

The Ministry of Health of Peru published a document with the aim of addressing people affected by COVID-19, and detailed, among other issues, the management of patients according to the severity of the infection and the presence of risk factors, such as age and comorbidities, where immunosuppressed patients are included. This document recommended isolation for 14 days in mild cases with risk factors in order to avoid contagion; and in moderate and severe cases, 14 days after hospital discharge.[2] However, we know that immunosuppressed patients, such as those with hematological neoplasms, either due to the same disease or the treatment they receive, have a numerical and functional reduction in both of the components of innate and acquired immunity with a greater chance of developing severe disease and poor short-term prognosis. This immune deficiency would increase the probabilities of a prolonged stay of the SARS-CoV-2 virus in the body and, therefore, a probable longer contagion time; reporting cases with a prolonged viral shedding that even exceeded the 100 days.[3]

Unfortunately, the knowledge of this subject is incomplete and the approach to these patients is limited. Besides, there are no solid recommendations to suspend measures aimed at preventing the transmission of SARS-CoV-2. The US Centers for Disease Control and Prevention recommended that this suspension should be given at least 10 to 20 days after the onset of symptoms; However, they also reported that viruses with replication capacity can be isolated in these patients beyond 20 days after the initial diagnosis, even in asymptomatic patients; in addition, they suggested using an evidence-based strategy, after at least two negative respiratory samples, separated by at least 24 hours, for detection of viral RNA.[4] But nevertheless; It should be mentioned that a positive RT-PCR test does not necessarily mean viral replication or contagiousness; for this, it is necessary to carry out a viable viral culture, not available in our environment. Recently, the German Society of Hematology and Oncology recommends not to dismiss the possibility of infectivity and to continue with appropriate preventive measures.[5] Given this situation, we express our concern about the possibility of contagion and the prevention measures for the transmission of SARS-CoV2 in hematological patients who have reported a prolonged viral shedding.

The data presented show that patients with acute leukemia can persistently present SARS-CoV-2 beyond 60 days as a result of a deficient immune response and, considering the lack of availability of detection methods for active viral replication, it would be advisable to maintain COVID-19 isolation measures. More robust data needs to be generated to correlate viral detection time with infectious power in the immunosuppressed patient with SARS-CoV-2 infection.

Table 1 – Patients with acute leukemia and prolonged viral shedding of SARS-CoV2, at the Guillermo Almenara Irigoyen National Hospital, Lima, Peru (October 2020 to February 2021).

Patient	Age	Sex	Acute leukemia		COVID-19			Final condition
			Diagnosis	Disease status	Diagnostic test	Severity	Positive test time (days)	
1	17	M	ALL - B	Active (Debut)	Antigenic test	Mild	43	Alive
2	15	M	ALL - B	CR	RT-PCR	Mild	58	Alive
3	44	M	AML	Active (Debut)	Antigenic test	Moderate	82	Alive
4	41	M	ALL - B	CR	Antigenic test	Mild	34	Alive
5	16	F	ALL - B	Active (Relapse)	Antigenic test	Mild	32	Dead
6	9	F	ALL - B	CR	RT-PCR	Mild	21	Alive
7	3	F	ALL - B	CR	RT-PCR	Mild	54	Alive

ALL-B: B-cell acute lymphoblastic leukemia; AML: Acute myeloid leukemia; CR: Complete remission; RT-PCR: reverse transcriptase polymerase chain reaction assay.

Conflicts of interest

The authors declare no conflicts of interest.

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