

LETTER TO THE EDITOR

COVID-19 in pediatric cancer patients in a resource-limited setting: National data from Peru

To the Editor:

Peru, an upper-middle income country according to the World Bank, is being severely affected by the COVID-19 pandemic, counting today 285 213 cases and 9677 deaths, and having one of the highest incidence rates of COVID-19 in the world (87.5 per million inhabitants).¹ National lockdown policies, transportation restriction, and economic constrains, along with disrupted health care services, have significantly impacted access for diagnosis and treatment of children with cancer.^{2,3} Although recent papers suggest that the pediatric oncology population may not have higher mortality resulting from SARS-CoV-2 infection in high-income countries (Spain,⁴ China,⁵ USA,⁶ Italy⁷), these patients would be a potential vulnerable group for worse outcomes,⁸ especially in low- and middle-income countries (LMIC).

We report 69 pediatric cancer patients (ages 0-16 years) diagnosed with SARS CoV-2 infection from March 6 to July 7, 2020 from six tertiary centers in Peru (National Institute of Neoplastic Diseases, Rebagliati Hospital, Almenara Hospital, and National Institute of Children San Borja in Lima; and two hospitals from Trujillo and Chiclayo) and three cancer shelters in Lima. The main patient characteristics are shown in Table 1. The cancer types included hematological malignancies (69%) and solid tumors (31%). Most patients were treated as ambulatory and interestingly, 20 (29%) were already hospitalized suspected of a potential nosocomial SARS-CoV-2 infection source. The most frequent symptoms were fever and cough (66.67%). Thirty-seven patients were asymptomatic (53.7%). Chemotherapy was stopped in all cases.

COVID-19 treatment was based on ivermectin, azithromycin, and corticosteroids in nine cases, whereas 60 patients did not receive any treatment. At the time of this report, 62 patients are alive with no complications due to SARS CoV-2 and seven are dead. Four patients had progressive disease and complications not related with COVID-19 and the rest (three patients) had severe pneumonia with rapid deterioration despite intensive care in one case or unavailable ICU beds in two cases. Patients under noncurative treatment were at more risk of death due to COVID-19 (chi-square, $P = .004$) than patients under curative treatment. In our cohort, COVID-19 lethality is 10%, much higher than documented for the general pediatric population in Peru (0.34%)¹ or other countries.^{9,10}

COVID-19 infection in children with cancer has generated new challenges in pediatric oncology worldwide, especially in limited resource settings. It is important to maintain pediatric cancer treatment as a priority; however, some factors such as the increasing number of

TABLE 1 Characteristics of study sample

Characteristic	(N = 69)
Age (years), median (range)	6 (10 months-15 years)
Gender	
Male	44
Female	25
Type of cancer	
Acute lymphoblastic leukemia	36
Non-Hodgkin lymphoma	5
Brain tumor	5
Wilms tumor	4
Myeloid leukemia	3
Bone tumor	3
Soft tissue tumor	3
Other	12
Time from diagnosis	
Recent diagnosis (within 3 months of diagnosis)	19
Type of treatment	
Curative	40
Palliative	9
Clinical presentation	
Asymptomatic	37
Fever only	12
Upper tract respiratory infection	11
Lower tract respiratory infection	5
Gastrointestinal infection	3
Skin features (dermic rash)	1
SARS-CoV-2 diagnosis	
IgM/IgG positivity in rapid test	23
Confirmed by SARS-CoV-2 PCR	34
Outcome	
Hospitalized due to COVID-19	13
Intensive care admission	3
Death	7 (10%)

cases, lack of hygiene culture in families, and socio-cultural behaviors characterized by close personal relation and extended families, would increase the probability of infection in pediatric cancer patients and their caregivers. This is especially important in a vulnerable subset of patients undergoing noncurative treatment, who have longer hospital stays and comorbidities. Similarly, wide inequalities in income would affect access to health care services and health outcomes during the COVID-19 pandemic in Peru. Strong efforts from governmental entities and nonprofit organizations are needed in order to improve the current situation, which could be similar in other LMICs, especially in Latin America as we share many economic, political, social, and cultural conditions.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ETHICAL STATEMENT

Approval for this study was obtained by the local ethics committee of each institution.

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