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LETTER TO THE EDITOR

High mortality of COVID-19 in children with cancer in a single center in Algiers, Algeria

To the Editor:

Algeria has been severely affected by the COVID-19 pandemic, with 42 228 cases and 1416 deaths (February 25 to August 25, 2020), and one of the highest incidences of COVID-19 in Africa.[1] The incidence of COVID-19 is remarkably less in the pediatric population than in the adult population, with children accounting for 1-5% of diagnosed cases.[2–4] Children with cancer remain at high potential risk of acquiring infectious diseases, including COVID-19. However, the current number of reported cases of COVID-19 among these patients is limited. The risk of severe disease with COVID-19 in profoundly immunocompromised children is still unknown, and predictors of the severity of the disease would help support the development of approaches to prevent and to optimize treatment of COVID-19 in this vulnerable patient population.

Recent publications suggest that the pediatric oncology population may not have higher mortality resulting from SARS-CoV-2 infection in high-income countries such as Spain, China, USA, Italy, and France.[5–9]

We present a case series of pediatric oncology patients infected with COVID-19 in the Pediatric Oncology Department of the University Hospital Mustapha Bachain Algiers during the period from June 1 to August 31, 2020. During the study period, there were 258 accesses for inpatients registered and 183 for outpatients. Overall, 17 patients and 17 parents were tested for COVID-19 (nasopharyngeal swab reverse transcriptase polymerase chain reaction). Twenty-six were asymptomatic (tested due to close contact with diagnosed cases) and eight were symptomatic (four parents and four patients). Seven cases of proven COVID-19 were identified: three males and four females, with a median age of 5 years (range 1-16). The cancer types included hematological malignancies (six cases) and neuroblastoma (one case). The main patient characteristics are shown in Table 1. Five patients were family-clustered cases and had a close contact history with confirmed or suspected COVID-19 patients; two were infected during hospitalization. Six of these patients were on treatment, and one had completed treatment and was in follow-up.

The most frequent symptoms were fever and cough (four cases), followed by diarrhea (two cases), skin lesions (one case), and seizures (one case); three patients were asymptomatic. Chemotherapy was stopped in all the cases. Most patients received azithromycin, three of them in different combinations (including hydroxychloroquine, corticosteroids, and anakinra). Three patients required oxygen therapy and were transferred to the COVID-19 unit of the pediatric department.

TABLE 1 Patient demographics and clinical characteristics

Age (years)	
≤2 years	1
≥ 2 years	6
Sex	
Male	3
Female	4
Underlying cancer	
Leukemia	5
Lymphoma	1
Neuroblastoma	1
Symptoms at onset Fever	
Cough	4
Diarrhea	2
Seizure	1
Skin lesions	1
Hospitalization status	
Not admitted	3
Admitted	4
Oxygen requirement	
None	4
Low-flow oxygen	1
High-flow oxygen	2
Deaths	2

Two patients experienced complications of the viral disease and died: the first patient was treated for a relapse of acute lymphoid leukemia (ALL) after allogenic hematopoietic stem cell transplantation and developed severe respiratory distress and seizure; the second patient, with refractory ALL, had previously been given intensive chemotherapy and developed rapid respiratory deterioration.

Our case fatality rate of 28% is high, although the total sample size is very small. This finding differs from reports that indicate a better clinical outcome in pediatric patients with cancer.[7,10] It is possible that differences in the use of critical care resources might have contributed to variations in the outcome of patients with cancer.

COVID-19 infection in children with cancer has created new challenges in pediatric oncology worldwide, especially in limited resources settings, where patients would be a potential vulnerable group for worse outcomes.[11] Early identification of the specific features of severe COVID-19 in pediatric patients and timely treatment are of crucial importance.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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REFERENCES

1. World Health Organization. *Coronavirus Disease (COVID-19) Pandemic*. WHO; 2020. https://www.afro.who.int/health-topics/coronavirus-covid-19. Accessed July 2020
2. Dong Y, Mo X, Hu Y, et al. Epidemiological characteristics of 2143 pediatric patients with 2019 coronavirus disease in China. *Pediatrics*. 2020;146(6):e20200702.
3. Guan W, Ni Z, Hu Y, et al. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med*. 2020;382:1708-1720. https://doi.org/10.1056/NEJMoa2002032
4. Ludvigsson JF. Systematic review of COVID-19 in children shows milder cases and a better prognosis than adults. *Acta Paediatr*. 2020;109:1088-1095. https://doi.org/10.1111/apa.15270
5. De Rojas T, Pérez-Martínez A, Cela E, et al. COVID-19 infection in children and adolescents with cancer in Madrid. *Pediatr Blood Cancer*. 2020;67(7):e28397. https://doi.org/10.1002/pbc.28397
6. She J, Liu L, Liu W. COVID-19 epidemic: disease characteristics in children. *J Med Virol*. 2020;92(7):747-754.
7. Boulad F, Kamboj M, Bouvier N, Mauguen A, Kung AL. COVID-19 in children with cancer in New York City. *JAMA Oncol*. 2020;6:1459-1460. https://doi.org/10.1001/jamaoncol.2020.2028
8. Ferrari A, Zecca M, Rizzari C, et al. Children with cancer in the time of COVID-19: an 8-week report from the six pediatric onco-hematology centers in Lombardia, Italy. *Pediatr Blood Cancer*. 2020;67(8):e28410. https://doi.org/10.1002/pbc.28410
9. André N, Rouger-Gaudichon J, Brethon B, et al. COVID-19 in pediatric oncology from French pediatric oncology and hematology centers: high risk of severe forms?. *Pediatr Blood Cancer*. 2020;67(7):e28392.
10. Balduzzi A, Brivio E, Rovelli A, et al. Lessons after the early management of the COVID-19 outbreak in a pediatric transplant and hematooncology center embedded within a COVID-19 dedicated hospital in Lombardia, Italy. Estote parati. *Bone Marrow Transplant*. 2020;55(10):1900-1905. http://doi.org/10.1038/s41409-020-0895-4
11. Kotecha RS. Challenges posed by COVID-19 to children with cancer. *Lancet Oncol*. 2020;21(5):e235.