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LETTER TO THE EDITOR

Collateral effects of COVID-19 pandemic in pediatric hematooncology: Fatalities caused by diagnostic delay

To the Editor:

Coronavirus disease COVID-19 has deeply modified national health services with a profound impact on hospitals, and in particular emergency and intensive care unit (ICU) activities. As recently reported in Italy, pediatric emergency accesses substantially decreased likely due to the instructions to prevent overcrowding in emergency rooms and spread of SARS-CoV-2 infection and to fear of the infection.[1] At the Santobono-Pausilipon Hospital (Naples), pediatric emergency accesses in March 2020 were only one-fifth of those registered in 2019 in the same period. Likewise, a marked reduction of consultations also occurred in family pediatric clinics.[2]

We report here three children who arrived at hospital with life-threatening conditions at the onset of acute lymphoblastic leukemia (ALL) between March 14 and April 10, 2020.

First case: A 2-year-old child arrived at the emergency department with a 15-day history of fatigue, pallor, and dyspnea, in a comatose state with severe anemia, respiratory distress, hematemesis, and metabolic acidosis. Chest X-ray showed interstitial pneumonia. Blood tests showed the following results: hemoglobin 2.7 g/dL, WBC count 185 000/μL, platelets (PTL) 10 000/μL, and LDH 3609 U/L. Peripheral blood was diagnostic for CD10, CD19, and CD58 positive ALL (B-lineage ALL). The patient, admitted at the ICU, intubated, transfused with RBC, PTL, and plasma, died 12 h after arrival at the hospital due to progressive worsening of clinical conditions. The nasal swab was negative for SARS-CoV-2 and positive for adenovirus.

Second case: A 5-year-old child arrived at the emergency department with a 1-month history of respiratory distress. Imaging showed a mediastinal mass compressing the brachiocephalic vein, the aorta, the pulmonary trunk, and the left pulmonary artery; tracheal deviation;compression of the left main bronchus; left lung atelectasis; and pleural effusion. Blood tests showed the following results: hemoglobin 14.5 g/dL, WBC count 37 000/μL, PTL 294 000/μL, LDH 6153 U/L, creatinine 1.9 mg/dL. Peripheral blood was diagnostic for CD5, CD7, CyCD3, and CD8 positive ALL (T-ALL). Steroid treatment was started. Clinical conditions deteriorated rapidly with cardiac and renal failure. The patient, admitted to ICU 2 h after arrival at the hospital and intubated, died 24 h later. The nasal swab was negative for SARS-CoV-2.

Third case: A 4-year-old child arrived at the hospital with 1-month history of fever, cough, and shortness of breath, treated at home with antibiotics and steroids without improvement. Imaging showed a mediastinal mass compressing the left brachiocephalic, azygos and superior cava veins, and right pulmonary artery and vein; mild tracheal deviation; compression of the left main bronchus; pericardial and pleural effusion; nephro-hepato-splenomegaly and ascites. Due to signs of cardiac tamponade, pericardiac and pleural drainage were placed and the patient was admitted to ICU and intubated. Blood tests showed the following results: normal hemoglobin, WBC, and PTL counts; LDH 2732 U/L, creatinine 2.98 mg/dL, K 8 mEq/L, and Ca 5.4 mEq/L. Bone marrow was diagnostic for CD2, CD5, CD7, CD99, and CyCD3 positive ALL (T-ALL). Treatment with steroids was started. Due to progressive renal failure, hemodialysis was performed for 9 days. Clinical conditions improved with rapid shrinking of mediastinal masses and resolution of pericardial and pleural effusion. The patient was thus extubated and treatment for ALL was instituted with good response to induction therapy. The nasal swab was negative for SARS-CoV-2.

The three cases of ALL are described here, two of them fatal, arrived at the hospital in critical condition, most likely as a consequence of fear of COVID-19. Delay in diagnosis of neoplastic disease is a well-known problem in low- to middle-income countries (LMIC), but is quite rare in high-income countries (HIC). Actually, this combination of events never occurred in the past at the Santobono-Pausilipon Hospital, where, at the time of writing, no SARS-CoV-2-positive cases have been identified among children treated for cancer.

Considering low prevalence of virus spreading in children and that SARS-CoV-2-positive children are generally asymptomatic or have a very mild course of the disease, there is a substantial risk that collateral effects of COVID-19 pandemic, that is, delays in diagnosis, chemotherapeutic treatments, and treatment of chemotherapy complications, may be worse than those posed by the disease itself.[3–5] Recently, the major pediatric cancer scientific associations have expressed great concern on the risk that fear to access to medical care raised by COVID-19 may cause these delays not only in LMIC but also in HIC with dramatic consequences we are not used to face.[6,7] Our experience confirms the occurrence of these collateral effects, indicating that there is a need of awareness of this risk and careful medical attention to assure timely diagnoses and adequate treatment adherence in childhood cancer.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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