

LETTER TO THE EDITOR

Statement on the prevention and treatment of COVID-19 in patients with pediatric cancer in Japan

To the Editor:

The novel coronavirus disease (COVID-19) has caused a global pandemic since December 2019. The reported risk factors for severe infection include old age, diabetes, respiratory diseases, and cancer.¹ Some reports showed that many pediatric cases were asymptomatic.^{2,3} Three of 171 cases of pediatric infections in Wuhan required intensive care including ventilator use and one of these cases was a leukemia patient undergoing maintenance therapy.²

Pediatric cancer patients are presumed to be at high risk of COVID-19 infection. Existing guidelines for COVID-19 infection in pediatric cancer patients focus on infection prevention,⁴ with no reference to patients who are already infected. This statement shall serve as the first statement in response to the pressing issues in clinical practice now that the Japanese government has declared a state of emergency in the face of an explosive spread of the infection in the country.

Any patient presenting with sore throat, cough, malaise, persistent fever, and any abnormal sense of smell or taste should be suspected of having COVID-19 disease and should be subjected to measures against droplet/contact infections. If the patient and his or her family members have high exposure risks with COVID-19, they should be treated as suspected infected cases. For these patients, screening for infection by polymerase chain reaction (PCR) tests of nasopharyngeal swab specimens may prove useful; however, even if they test negative initially during the spread of the infection, it would be ideal for them to follow measures against droplet/contact infections for 14 days with the incubation period of the virus in mind.

A patient who goes outside should wear a mask and ensure thorough hand hygiene. If the hospital is far from the patient, consider receiving medication and treatment at a nearby facility.

If the patient's condition is stable, the intervals between tests to observe the clinical course shall be extended to reduce the frequency of hospital visits.

If a member of a patient's family has become infected with COVID-19, isolate the patient immediately to reduce the risk of infection. Monitor the patient's health for 14 days.

Diagnosis of novel coronavirus infection is based on severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) positivity of nasopharyngeal swab specimens.

If the PCR result is positive, the patient is isolated in a room with negative pressure, and healthcare professionals shall implement preventive measures against droplet/contact infection.

The condition of patients infected with COVID-19 will be classified into one of the four categories (Table 1).³ Patients belonging to Categories 1 and 2 require careful observation without antiviral drug administration. Antiviral administration should be considered for patients belonging to Categories 3 and 4 (Supporting Information).^{5,6}

Use of chemotherapy should be avoided in patients with positive PCR test results for SARS-CoV-2. Chemotherapy should be started after confirming PCR negativity in both of the two tests conducted 24 h apart. However, patients with high-risk cancer should prioritize cancer treatment. If the patient's condition fits Category 2 or higher, treatments for COVID-19 disease should be prioritized. There have been no reports on the concurrent administration of antineoplastic agents with antiviral drugs.

The radiation therapy should be postponed in patients with positive PCR test results for COVID-19 and started after confirming PCR negativity in both of the two tests conducted 24 h apart. If the patient's condition fits Category 2 or higher, treatments for COVID-19 disease should be prioritized. There have been no reports on the concurrent administration of radiation therapy with antiviral drugs.

When patients with COVID-19 undergo radiation therapy, it would be ideal to minimize their contact with other patients undergoing radiation therapy. Healthcare professionals should take measures to prevent droplet/contact infection, including wiping any surface with which the patient came into contact using a 70% or higher alcohol preparation after the patient has left the treatment room, and ensuring adequate ventilation.

Surgery should be postponed in patients with positive PCR test results for SARS-CoV-2. Surgery can be performed after confirming PCR negativity in both of the two tests conducted 24 h apart. However, surgeries required for urgent reasons such as difficulty to maintain life without operating on the tumor can be performed with attention to the following matters. A private, negative pressure isolation room should be used as the operating room. The number of surgical staff involved should be kept to a minimum. As a large quantity of aerosol is generated during patient intubation, the surgical staff should take appropriate measures to prevent droplet/contact infection by wearing personal protective equipment (PPE) such as N95 masks, goggles or face shields, caps, and long-sleeve gowns.

Transplantation should be postponed in patients with positive PCR test results for SARS-CoV-2. Stem cell transplantation should be performed after confirming PCR negativity in both of the two tests conducted 24 h apart.

TABLE 1 Clinical types of COVID-19 in pediatric patients

Categories	Symptoms	Imaging findings
1) Mild	Asymptomatic, upper respiratory symptoms (pharyngeal congestion, sore throat, and fever), abnormal sense of taste and smell	No abnormal findings at chest X-ray
2) Moderate	Coughing, fever, malaise, headache, muscle pain	Mild pneumonia
3) Severe	Hyperpnea, hypoxia, disturbance of consciousness, dehydration, myocardial damage, liver damage, coagulation abnormalities	Pneumonia, bilateral ground glass opacity and multiple consolidation at chest CT
4) Critical	Rapid deterioration of the condition and the patient requires ventilator management, experiences shock, or requires intensive care unit (ICU) management due to multiple organ failure	Severe pneumonia, acute respiratory distress syndrome (ARDS)

Individuals positive for COVID-19 should not be stem cell donors.

During the period that the virus is spreading, both donors and recipients should have stem cells harvested and transplanted, respectively, after confirming PCR negativity for SARS-CoV-2.

If a patient who is PCR positive for SARS-CoV-2 requires diagnostic imaging tests, bedside diagnostic approaches such as ultrasonography or plain X-rays using portable machinery should be prioritized. Patients requiring tests such as computed tomography and magnetic resonance imaging scans and scintigraphy should be kept from contact with other patients. The patient being tested should wear a mask while on the way to the testing room and the test technician should wear PPE and take appropriate measures to prevent droplet/contact infection.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.