

Delivering Pediatric Oncology services during a COVID-19 Pandemic in India

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Abstract

The pandemic of the novel coronavirus disease, COVID-19 is having a serious impact on pediatric patients with cancer. Social distancing, self-quarantining and nationwide lockdown have resulted in restricted movements of patients and families across the country. This has made the optimum management of children with cancer difficult. In this clinical perspective, we discuss the issues related to COVID-19 and pediatric cancer and how we have attempted to optimize the treatment for our patients using telemedicine, reorganizing the day care services, triaging our patients and modifying their treatment plans, partnered with the NGOs and local medical centres to provide care to our patients.

Title page

Letter to Editor

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Abbreviations	Abbreviations
PPE	personal protective equipment
HSCT	Hematopoietic Stem Cell Transplantation
ALL	Acute lymphoblastic leukemia
RB	Retinoblastoma
LCH	Langerhans cell histiocytosis
RMS	Rhabdomyosarcoma
CML	Chronic myeloid leukemia
EUA	Examination under anesthesia
CBC	Complete Blood Count
LFT	liver function test
ITM	intra thecal methotrexate

Delivering Pediatric Oncology services during a COVID-19 Pandemic in India

The global pandemic of the novel coronavirus disease, COVID-19 is having a serious impact on pediatric patients, making it difficult for them to continue treatment^{1, 2}.

Providing medical care to children with cancer is challenging during the COVID -19 pandemic, given the risks of death from cancer versus death or serious complications from COVID-19 infection in immunocompromised hosts³⁻⁸. There is shortage of personal protective equipment (PPE) for health personnel, restricted inpatient and intensive care facilities, limited blood bank supplies and diagnostic services⁴. In this correspondence we describe the strategy used in our unit to deliver optimum oncology services during COVID -19 pandemic best suited to our system.

In the initial phases of the COVID -19 pandemic the main focus was on staying at home, hand/respiratory hygiene and social distancing. The patients were asked to stay indoors and continue oral chemotherapy wherever feasible and defer the intensive chemotherapy, which would require hospital visits and possible subsequent admission for febrile neutropenia^{3, 5}.

Preventive measures during hospital visits : Strict implementation of protective measures, including mask use by patients and their caregivers, hand hygiene, appropriate respiratory etiquette and social dis-

tancing was enforced. Health education regarding pandemic was imparted to patients telephonically and during day care visits. Patients with suspected COVID were screened. Testing/quarantine/admission was advised on a case to case basis. The protocol followed in the unit for evaluation of patients with febrile neutropenia was modified: throat examination and aerosol generating procedures were withdrawn. Children may act as asymptomatic carriers leading to community spread. Strict crowd control for patients' attendants was implemented. The hospital had temporarily withdrawn outpatient and specialty clinic services, hence new patients were not registered. Patients presenting with oncologic emergencies and those requiring high dose chemotherapy were admitted. For those requiring in-patient admissions for intensive chemotherapy a strict appointment system was adhered.

The lockdown : By the third week of COVID-19 pandemic a nationwide lockdown had been declared. We set a system of triaging for our patients that helped the oncology team to take decisions for our patients.(Table 1)

Patient tracking/ Teleconsultations was done by our nurses and social workers and assisted by the doctors.(Table 1)

Revisiting the treatment plan : Triaging was done for patients on chemotherapy. Patients were allocated to a risk zone and relevant treatment advice was given. Treatment protocols requiring surgery/radiation/hematopoietic stem cell transplantation (HSCT) needed modification as these therapeutic modalities were temporarily suspended due to COVID concerns. Occasionally, patients were switched to low dose /less toxic chemotherapy to tide over this critical period.(Table 1)

Reorganization of day-care services was done to facilitate treatment.(Table 2)

Resource utilization : Ours is a premier tertiary medical Institute in India and has been designated a COVID centre. Understanding the nature of the COVID-19 disease and requirements of the pandemic, the team of doctors and nurses was split into two. This splitting of resources keeps a reserve pool of medical staff, should one team inadvertently be exposed to a COVID-19 case.

Role of Tele-health: Patients were contacted and helped by telephone, helplines and email and using a support group called "Sambhav". More than 170 exchanges were done.

NGO interface : Our NGO partners helped with antibiotic administrations, transport within the city and across states, accommodation and coordination with local hospitals. They also helped transfer medicines to distant patients.

Blood donation : The lockdown had drastically reduced the number of voluntary blood donations/donations from relatives resulting in shortage of blood components in the blood bank. Travel documents were issued by the treating team to permit donors to come for voluntary blood donation.

Discussion : The pandemic caused by SARS-CoV-2 (COVID-19) has greatly affected the delivery of care for children with cancer worldwide. Information on COVID 19 infection in pediatric cancer patients is scarce⁹. In our unit we conducted COVID -19 testing for seven patients, of which one tested positive. All patients were febrile, had cough and tachypnoea (of these two were hypoxic), shock was present in two and pneumothorax was present in one patient. One patient came from a hotspot area. The one patient who was COVID positive in addition had features of meningoencephalitis.

A number of studies from around the world ^{3,5,8,10,11} have suggested dose reductions, increasing intervals between cycles depending on the physical status of patient, disease status and risk of chemotherapy. It seems desirable to postpone high- intensity treatments where feasible and to prepare to triage according to prognosis^{5, 8,10}. A recent publication has focused on providing guiding principles for management of various childhood cancers, in particular the ones with best clinical outcomes (acute lymphoblastic leukemia, Hodgkin lymphoma, retinoblastoma, Wilms tumor and low- grade glioma) ¹².

A balance needs to be created keeping in mind risks associated with COVID-19 and the timely management of a child with cancer¹². At the onset of the pandemic and lockdown where the focus was on social distancing,

staying at home and using a triage system to deliver oncology services it was realized that this cannot go on indiscriminately. We are now tracking all our patients who received chemotherapy in the last three years and facilitating delivery of all pending chemotherapy that was postponed during the initial phases of the pandemic.

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- *AIIMS: the entire medical staff and administration who facilitated care of our affected children*
- *CANKIDS – KIDSCAN (our NGO partner)*

Ethics Statement:

This is to certify that there are no ethical issues related to this paper and no human subject data is involved. Therefore, no patient consent is required either.

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