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## COVID-19 Pandemic: The Challenges for Pediatric Oncology

The global pandemic of the novel coronavirus disease (COVID-19) has had a significant impact on adult and pediatric patients with many acute and chronic diseases including cancer. The purpose of this correspondence is to project the challenges faced by both, the children undergoing treatment and the treating pediatric oncologist [1].

Providing medical care to children with cancer during this pandemic is challenging given the risks of death from cancer *versus* death or serious complications in the immunocompromised hosts [2,3]. Hospitals are delaying chemotherapy, radiotherapy and surgery after being overwhelmed by COVID-19 infection. Patients with cancer also fear coming to hospital fearing the risk of infection. There are also limited supplies of personal protective equipment (PPE) for doctors and other personnel, limited beds and ICU facility, limited blood bank facilities and also strained diagnostic facilities. Limited data, though from adults, also suggests that cancer patients with COVID will fare worse [4]. In a study from China, there was a higher risk of severe events in COVID-19 patients with cancer compared with those without cancer. Theoretically, immune therapy can result in cytokine release and worsen the viral injury, which is also believed to be due to a cytokine storm, but this is a theoretical consideration and not proven due to very limited data.

Some general guidelines have been provided for children with cancer [5], which include, in addition to

social distancing, mask usage outside home and hygiene, *viz.* clinic visits that can be postponed without risk to the patient should be postponed and telemedicine to be used to screen and evaluate patients. Certain other issues are briefly elucidated herein.

*Difficulty in hospital consultation:* Many hospitals have been designated as centers for management of COVID-19, leading to temporary stoppage of outpatient services. Children with malignancies are unable to come for outpatient consultation for clinical follow-up and chemotherapy planning. In addition, it is now difficult for outstation patients to visit referral centers, despite prior appointments.

New cases needing evaluation are also not able to reach some of the major hospitals, which have temporarily closed OPD registrations to focus on COVID patients. There is also risk of new patients being asymptomatic carriers, but the current guidelines do not allow COVID testing for all new hospital admissions even if they are immune-compromised cancer patients.

*Increased risk of coronavirus infection:* The pandemic poses a risk of coronavirus infection for all individuals including children. Children with cancer are assumed to be more susceptible to the coronavirus due to inherent suppressed immune function associated with cancer treatment and repeated attendance in health care facilities [2].

*Treatment delay:* Children with cancer, already on treatment, were advised to stay indoors and practice social distancing resulting in delay in their treatment. The nationwide lockdown further delayed the treatment due to restricted mobility even within the city or travel from outstation. The bed strength available for in-house admission has also reduced due to diversion to COVID-19 wards, leading to delayed/deferred intensive chemo-

therapies requiring in-house management [5]. Most hospitals have split the staff into two or more teams so as to reduce chances of infection and keep a reserve pool of medical staff, should one team be exposed to a COVID case. A drawback has been the increased workload for treating teams, and the possibility of delay in getting appointment for investigations/procedures.

*Shortage of blood component:* The lockdown has drastically reduced the number of voluntary blood donations, thereby creating a shortage at blood banks. In addition, relatives of patients have also been unable to come for donations due to travel restrictions. This problem has also been highlighted in centers treating thalassemia patients [6].

*Social impact:* The COVID -19 pandemic has caused stress to families resulting from the infection itself, delayed treatment, need of prolonged unexpected stay due to lockdown, lack of availability of accommodation and financial implications. Patients often need travel passes and travel support from treating physician and NGOs to be able to come to hospitals for treatment. Some are not willing to come for treatment for fear of contacting corona infection.

In a recent online publication [7], it was stated that there is no reason to discontinue daily activities in pediatric hematology/oncology units or to turn away children with suspected cancer during this pandemic. It seems desirable to postpone high intensity treatments, where feasible, and to prepare to triage according to prognosis. Similar treatment advice has also been released online recently by Tata Memorial Hospital, Mumbai. It may be highlighted that the rarity of cases reported precludes the development of clear chemotherapy guidelines for children being treated for cancer.

In summary, delivering cancer care during the pandemic is challenging given the risks of death from cancer *versus* death from infection. The likelihood of a severe illness from COVID-19 is higher among patients with cancer. As more information becomes available evidence-based consensus recommendations may emerge. Individual centers treating childhood cancers may come up with strategies to tackle the situation. A balance needs to be created keeping in mind risks associated with COVID-19 and the timely management of a child with cancer [8].

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