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LETTER TO THE EDITOR

COVID-19 vaccination for children with cancer

To the Editor:

There has been a rapid global response in vaccine development since declaration of the COVID-19 pandemic in March 2020. Data are beginning to emerge establishing the safety, tolerability, immunogenicity and efficacy of COVID-19 vaccines in children and adolescents.[1,2] While children and adolescents infected with SARS-CoV-2 suffer from milder illness than adults, those with underlying health co-morbidities, including cancer, can suffer from severe disease.[3,4] Minimizing risk of exposure remains important in reducing the risk of SARS-CoV-2 infection in children with cancer,[5] however vaccination is emerging as a critical strategy for prevention of infection, reducing severity of disease and contributing to herd immunity.

Currently, there is widespread recommendation for patients with cancer to receive COVID-19 vaccination,[6] supported by a prospective observational study in adults with cancer that identified safety and immunogenicity following BNT162b2 vaccination.[7] Although inferior to healthy controls, rates of seroconversion were better following an early second vaccine boost on day 21 and for patients with solid tumors compared to those with hematological cancers. The latter is supported by a recent study, which identified a blunted and heterogeneous antibody response to BNT162b2 vaccination in adults with hematological malignancies.[8]

There is a paucity of data regarding COVID-19 vaccination in children with cancer; however, these findings have been mirrored by studies of inactivated influenza and pneumococcal vaccination, which reflect that children with cancer are able to mount protective immune responses to vaccination, and that the extent of response is modulated by a variety of factors that can include the number of doses received, whether treatment is being delivered for a solid or hematological malignancy and lymphocyte count at the time of vaccination.[9–11] Given that the patterns of response are reflective of host immunity, similar outcomes are likely to be found following COVID-19 vaccination in children with cancer, suggesting that optimization of outcome could be achieved by timing immunization at the furthest point from the immunosuppressing effect of cytotoxic treatment during a given cycle. In addition, a specific consideration to vaccination of children with acute lymphoblastic leukemia is the presence of polyethylene glycol (PEG) as a stabilizing component of mRNA COVID-19 vaccines, necessitating the development and validation of strategies to mitigate risk for children with a prior history of hypersensitivity to PEG-asparaginase.[12]

The COVID-19 and Cancer Taskforce have identified that on an international scale, there has been little planning for the systematic collection of data from patients with cancer receiving COVID-19 vaccines.[13] As COVID-19 vaccines become licensed for use in children and adolescents, there is a need to develop clinical trials in children with cancer to provide best evidence. However, given that access to trials will not be universal and the length of time required to conduct a trial, it will be essential for global collation of data for children with cancer who are vaccinated outside of a clinical trial setting. This should include a minimum clinical dataset, with reporting of safety data, including adverse events such as myocarditis and pericarditis,[14] and history of COVID-19 infection prior to and postvaccination. This could be best facilitated by platforms such as the Global COVID-19 Observatory and Resource Center for Childhood Cancer, which continues to provide an invaluable resource on COVID-19 for health care professionals treating children withcancer.[3]

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