

SUPPLEMENT

Risk factors for severe PCR-positive SARS-CoV-2 infection in hospitalized children

Supplementary Methods

Supplementary Table 1. WHO COVID-19 progression scale from Marshall *et al*¹

Supplementary Methods

Baseline exposure variables included age, sex, country of admission, admission period (arbitrarily divided into prior to July 1, 2020; July 1 until Dec 31, 2020; Jan 1 until May 31, 2021), and comorbidities. These chronic health conditions were classified using the Canadian National Advisory Committee on Immunization risk group classification for influenza and adapted according to putative risk factors for severe COVID-19 in children. Classification of chronic health condition was the following: neurological, cardiac, pulmonary (also subcategorized into: asthma; non-asthma pulmonary disease), metabolic (including diabetes mellitus), renal, and chromosomal disorders, immunosuppression (including malignancy), obesity, prematurity (<37 weeks gestational age), anemia and/or hemoglobinopathy and 'other' comorbidities which included patients who could not be classified into the previous categories.

Other potential predictor variables (measured at any point during the hospitalization) were: clinical manifestations, viral coinfection (defined as laboratory detection of any other virus; testing at the discretion of the clinical team), bacterial coinfection (defined as laboratory detection of ≥ 1 bacteria treated with antibiotics; testing and treatment at the discretion of the clinical team), chest imaging results based on the reporting physician's assessment (categorized as: no chest imaging done; chest x-ray and/or CT chest normal or had findings unrelated to COVID-19; chest x-ray and/or CT chest abnormalities compatible with COVID-19), laboratory parameters (age-defined leukocytosis, leukopenia, neutrophilia, neutropenia, thrombocytosis or thrombocytopenia²; C-reactive Protein [CRP] >50mg/L; Ferritin >500 mcg/L; albumin <29g/L), diagnosis of MIS-C (as defined by WHO criteria³).

Ethics approval was obtained from the following ethics review boards: Comité Ético Científico Hospital Nacional de Niños, San José, Costa Rica (CEC-HNN-030-2020), Iran University of Medical Sciences Ethics Review Committee (IR.IUMS.REC.1399.187), The Hospital for Sick Children Research Ethics Board (#1000070091), Pediatric Panel of the Research Ethics Board of the Research Institute of the McGill University Health Centre (#MP-37-2021-6561), Conjoint Health Research Ethics Board, University of Calgary (REB20-0594), Children's Hospital of Eastern Ontario Research Ethics Board (CHEOREB# 20/32X), University of British Columbia Children's and Women's Research Ethics Board (# H20-00977), Health Research Ethics Board, University of Manitoba (HSC23858), University of Saskatchewan Biomedical Research Ethics Board (Study 1921), Hamilton Integrated Research Ethics Board (ID 11240), Centre Hospitalier Universitaire de Québec-Université Laval (37-2021-6561), and Health Research Ethics Board, University of Alberta (Pro00099426), CHU Sainte-Justine, Université de Montréal (MEO-37-2021-3123), Lawson Health Research Institute (ReDA ID 9857), Trillium Health Partners Research Ethics Board (#1002), Queen's University Health Sciences & Affiliated Teaching Hospitals Research Ethics Board (#6029527), IWK Research Ethics Board (#1026214). Newfoundland and Labrador Health Research Ethics Board (# 2020.047)

References for supplementary methods

1. WHO-Working-Group-on-the-Clinical-Characterisation-and-Management-of-COVID-19-infection. A minimal common outcome measure set for COVID-19 clinical research. *Lancet Infect Dis* 2020; **20**(8): e192-e7.
2. Orkin N, Nathan D, Ginsburg D. Nathan & Oski's Hematology of Infancy and Childhood. 7th ed. Philadelphia 2009.
3. WHO. Multisystem inflammatory syndrome in children and adolescents temporally related to COVID-19. 2020. <https://www.who.int/news-room/commentaries/detail/multisystem-inflammatory-syndrome-in-children-and-adolescents-with-covid-19>. (accessed 10/04/2021).

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Patient State	Descriptor	Score
Uninfected	Uninfected; no viral RNA detected	0
Ambulatory mild disease	Asymptomatic; viral DNA detected	1
	Symptomatic; independent	2
	Symptomatic; assistance needed	3
Hospitalized: moderate disease	Hospitalized; no oxygen therapy	4
	Hospitalized; oxygen by mask or nasal prongs	5
Hospitalized: severe disease	Hospitalized; oxygen by noninvasive ventilation or high flow	6
	Intubation and mechanical ventilation, $PO_2/FIO_2 \geq 150$ or $SpO_2/FIO_2 \geq 200$	7
	Mechanical ventilation, $PO_2/FIO_2 < 150$ or SpO_2/FIO_2 mm Hg < 200 or vasopressors	8
	Mechanical ventilation, $PO_2/FIO_2 < 150$ and vasopressors, dialysis or ECMO	9
Dead	Dead	10

