

PHENOTYPIC VARIATION IN DISEASE SEVERITY AMONG HOSPITALIZED PEDIATRIC PATIENTS WITH COVID-19: ASSESSING THE IMPACT OF COVID-19 IN THE EPICO STUDY

Melisa Sofía Naranjo Vanegas¹, María Camila Sossa², Mónica Paola Gutiérrez², Natalia Becerra², Luz Yessenia Ortegon², María Camila David², Pablo Vasquez-Hoyos³, María Lucia Mesa-Rubio², Sergio Moreno-Lopez¹, Olga Lucía Baquero Castañeda⁴, Sonia Restrepo-Gualteros², Clara Galvis⁵, Martha Africano⁶, CINTA MORALEDA⁷, ALFREDO TAGARRO⁷, Blanca Herrero⁸, Carlos Grasa⁹, Antoni Soriano-Arandes¹⁰, Andrea Ramirez¹, Luis Miguel Navarro Ramirez¹¹, Gabriela Friedrich¹¹, Alejandro Díaz-Díaz¹², Carlos Alvarez-Moreno¹³, Juan Gabriel Piñeros¹⁴, Luz Marina Mejía¹⁵, Iván Gutierrez-Tobar¹⁶, Andrés Camilo Mesa¹⁷, William Ricardo Bachiller Tuta¹⁸, José Manuel Nieto¹⁹, Paola Marcela Pérez Camacho²⁰, Claudia Beltrán-Arroyave²¹, Rosalba Vivas Trochez²², Irati Gastegi²³, Paula Rodriguez-Molino²⁴, Susana Melendo²⁵, Irene Gómez Pastrana²³, Sonsoles García García²³, Victoria Fumadó²⁶, and Lourdes Calleja²⁷

¹Universidad de los Andes Facultad de Medicina

²Hospital Universitario de la Fundacion Santa Fe de Bogota

³Red colaborativa pediátrica de Latinoamérica (LaRed Network

⁴Clinica Infantil Colsubsidio

⁵Hospital Militar Central

⁶Universidad Industrial de Santander Facultad de Ciencias

⁷Hospital Universitario 12 de Octubre Centro de Investigacion Biomedica

⁸Hospital Infantil Universitario Nino Jesus Servicio de Cuidados Intensivos Pediatricos

⁹Hospital Universitario La Paz Hospital Infantil

¹⁰Hospital Universitario Vall D´Hebron

¹¹Universidad de los Andes Facultad de Medicina Santiago, CL

¹²Universidad Nacional de Colombia Facultad de Medicina Bogota, CO

¹³Universidad Nacional de Colombia

¹⁴Hospital Universitario de la Fundacion Santa Fe de Bogota Bogota, CO

¹⁵Instituto de Ortopedia Infantil Roosevelt Bogota, CO 110001

¹⁶Clinica Colsanitas SA Bogota, CO 111176

¹⁷Hospital Infantil San José Bogotá, CO

¹⁸Fundación Universitaria de Ciencias de la Salud Bogota, CO

¹⁹Hospital Regional de la Orinoquía Yopal, CO

²⁰Fundacion Valle del Lili Centro de Investigaciones Clinicas Cali, CO

²¹Universidad de Antioquia, Clínica del Rosario Medellin, CO

²²Clínica SOMA Medellin, CO

²³Hospital Universitario 12 de Octubre Centro de Investigacion Biomedica Madrid, ES

28041

²⁴Hospital Universitario La Paz

²⁵Hospital Universitario Vall D´Hebron, Department of Pediatrics Barcelona, ES

²⁶Hospital Universitario Sant Joan de Deu, Department of Pediatrics Barcelona, ES

²⁷Hospital Infantil Universitario Nino Jesus Servicio de Cuidados Intensivos Pediatricos
Madrid, ES 28009

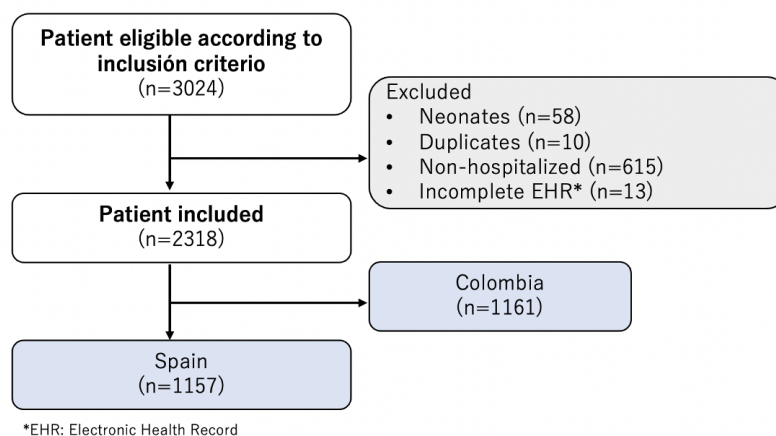
September 20, 2023

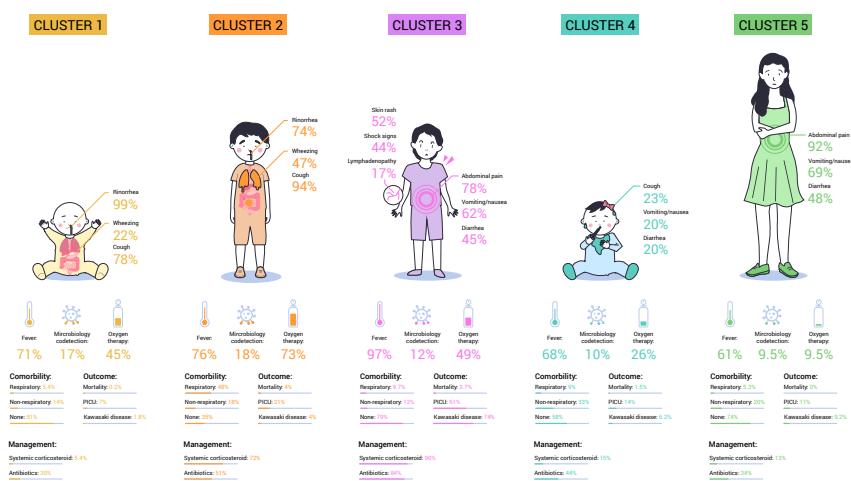
Abstract

Background: SARS-CoV-2 infection has been extensively documented since the onset of the pandemic, particularly in the adult population. However, there is a lack of evidence describing the phenotypic manifestations of the disease in the pediatric population. We aimed to characterize the clinical phenotypes of SARS-CoV-2 infection in hospitalized children. **Methods:** The EPICO study is a multicenter cohort conducted between April 2020- November 2021, involving 55 institutions in Spain and 13 institutions in Colombia. Hospitalized children aged 29 days to 17 years with confirmed SARS-CoV-2 infection were included to determine the disease’s evolution, severity factors, and outcomes. Cluster analysis was conducted to characterize clinical phenotypes. **Results:** A total of 2318 patients from Colombian and Spanish institutions were included. The population was 55% male, with infants being the largest group (36%). Five distinct phenotype clusters emerged, differing significantly in clinical and epidemiological characteristics. Cluster 1 (26.57%) consisted of infants without comorbidities, with low PICU admission and mortality rates. Cluster 2 (18.5%) had respiratory comorbidities, high co-detection, and mortality rates. Cluster 3 (11.51%) showed fever, gastrointestinal symptoms, and high PICU admission. Cluster 4 (32.09%) had mild unspecific symptoms and low mortality. Cluster 5 (11.3%) included adolescents without comorbidities, with low co-detection and hospitalization rates. Comparable findings were observed in both countries. **Conclusion:** Our study successfully identified distinct patterns of clinical and epidemiological characteristics associated with SARS-CoV-2 infection in hospitalized pediatric patients. These findings may help shape future guidelines and improve risk stratification in children.

Hosted file

EPIC03_final_17sep23.docx available at <https://authorea.com/users/666466/articles/667310-phenotypic-variation-in-disease-severity-among-hospitalized-pediatric-patients-with-covid-19-assessing-the-impact-of-covid-19-in-the-epico-study>





Hosted file

tables.docx available at <https://authorea.com/users/666466/articles/667310-phenotypic-variation-in-disease-severity-among-hospitalized-pediatric-patients-with-covid-19-assessing-the-impact-of-covid-19-in-the-epico-study>