Boletín Médico del
Hospital Infantil de México

PERMANYER

Check for updates

LETTER TO THE EDITOR

Epidemiological differences in SARS-CoV-2 admissions in a Peruvian pediatric intensive care unit during one year of pandemic

Diferencias epidemiológicas de los ingresos por SARS-CoV-2 en una unidad de cuidados intensivos pediátricos peruana durante un año de pandemia

*Ricardo Rodriguez-Portilla**

Servicio de Cuidados Intensivos Pediátricos, Hospital Nacional Edgardo Rebagliati Martins, Lima, Perú

Dear Editor,

It has been more than a year since the World Health Organization declared SARS-CoV-2 infection a pandemic[1]. Since then, more than 174 million people worldwide have been infected, and 3.7 million have died[2]. Cases have occurred in progressive increases termed waves, and many countries are currently in the second wave. It might be expected that the epidemiology and care requirements would be similar in both waves; however, it appears that this is not the case. Therefore, to understand these differences in critically ill children, SARS-CoV-2 admissions in the Pediatric Intensive Care Unit (PICU) of the Hospital Nacional Edgardo Rebagliati Martins (HNERM) during the first year of the pandemic in Peru were analyzed.

HNERM is a national reference center located in Lima, with more than 1,600 beds[3], nine of which correspond to PICU and two of which were assigned to the care of infected patients.

The end of March 2021 marked the first year of the pandemic in Peru. According to the Centro Nacional de Epidemiología, Prevención y Control de Enfermedades (National Center for Epidemiology, Disease Prevention, and Control), the first wave ended in December 2020, while the second wave started in January 2021 and is still ongoing during the writing of this letter[4]. Therefore, for the analysis of the first year, it is considered the first wave from April to December 2020 and the second wave from January to March 2021.

Digital medical records of PICU admissions for SARS-CoV-2 were reviewed. According to their diagnosis, cases were divided into pneumonia, multisystem inflammatory syndrome in children (MIS-C), and others. This last category included patients admitted for a cause unrelated to the virus, so its analysis was not further explored.

The following data were collected: diagnosis, admission date, admittance to the PICU area, age in years, sex, days of stay, and death or discharge. Qualitative variables were described as absolute or relative frequencies, while quantitative variables as medians and interquartile ranges.

In the first year of the pandemic, 53 patients with a critical condition associated with SARS-CoV-2 were admitted to the HNERM PICU, representing 19% of all admissions in the period considered. Of these, 45 were diagnosed by serological, molecular, or antigenic testing, seven by domiciliary contact with a positive case, and one by pulmonary tomography.

There were 33 admissions (62%) in the first wave and 20 (38%) in the second wave. Fifteen (28%) were admitted for pneumonia, six in the first and nine in the second wave; 24 (45%) for MIS-C, 15 in the first and nine in the second wave, and 14 (27%) for other causes, 12 in the first and two in the second wave.

Correspondence:
*Ricardo Rodriguez-Portilla
E-mail: ricardo.rodriguez@upch.pe

Date of reception: 07-04-2021
Date of acceptance: 16-06-2021
DOI: 10.24875/BMHIM.21000065

Available online: 29-09-2021
Bol Med Hosp Infant Mex. 2021;78(6):657-658
www.bmhim.com

Notably, nine cases of pneumonia were admitted during three months in the second wave, while there were six cases in nine months of the first wave. This difference could be related to social restrictions decrease and not to an increase in the number of cases, since the incidence per 100 inhabitants was lower in the second wave compared to the first, both in the general (2.67 vs. 3.32) and the pediatric population (0.25 vs. 0.63)[4].

The cases of pneumonia in the second wave were older (12.3 years [8.8-12.9] vs. 9.5 years [0.7-12.3]), and MIS-C cases were younger (6.3 years [2.1-9.9] vs. 8 years [5.9-10.5]) compared to the cases in the first wave. Also, there was greater involvement of the male sex in both cases of pneumonia (78% vs. 50%) and MIS-C (78% vs. 53%) in the second wave.

All cases of pneumonia in both waves, 87% of MIS-C cases in the first wave, and 44% in the second wave were admitted to the PICU-COVID. The median length of stay for pneumonia was 8 days [6-10], and for MIS-C, 5 days [4.5-7]. Six of the 53 patients died (11.3%), four in the first wave and two in the second. This percentage was slightly lower than the 12.7% overall mortality in the PICU during the same period.

Although only three months have passed since the second wave, it can be concluded that there have been more cases of pneumonia in this wave. In general, males were more affected, and this difference has been more significant in the second wave. Those who developed pneumonia were older than those who developed MIS-C in both waves. The mortality of critically ill children due to SARS-CoV-2 was slightly lower than overall PICU mortality.

The present analysis has limitations. It only evaluates one PICU, with a small sample size that limits applying a more robust statistical analysis. Although what has been observed in our unit has likely occurred in other units, it is necessary to conduct adequate studies, learn about our reality, and prepare ourselves to navigate successfully in this wave and those to come.

Ethical disclosures

Protection of human and animal subjects. The author declares that no experiments were performed on humans or animals for this study.

Confidentiality of data. The author declares that he has followed the protocols of his work center on the publication of patient data.

Right to privacy and informed consent. The author has obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author has this document.

Conflicts of interest

The author declares no conflict of interest.

Funding

None.

Acknowledgments

To Dr. Angela Parra del Riego Freundt-Thurne MD, for her review and suggestions.

References

1. World Health Organization. WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. Geneva: World Health Organization; 2020. Available from: https://www.who.int/es/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020.
2. Johns Hopkins University. Coronavirus Resource Center. Baltimore: Johns Hopkins University; 2021. Available from: https://coronavirus.jhu.edu/map.html.
3. Seguro Social de Salud. Hospital Rebagliati de EsSalud alcanza máxima categoría por su alta especialidad y capacidad resolutiva. Lima: Seguro Social de Salud; 2019. Available from: http://www.essalud.gob.pe/hospital-rebagliati-de-essalud-alcanza-maxima-categoria-por-su-alta-especialidad-y-capacidad-resolutiva.
4. Centro Nacional de Epidemiología, Prevención y Control de Enfermedades. Situación Actual COVID19 Perú 2020-2021 01 de junio. Lima: Ministerio de Salud del Perú; 2021. Available from: https://www.dge.gob.pe/portal/docs/tools/coronavirus/coronavirus010621.pdf.