

Impact of the First Wave of COVID-19 on PICU Admissions in Pakistan

The World Health Organisation (WHO) declared the outbreak of Coronavirus infection 2019 (COVID-19) as a Public Health Emergency of international concern on 30th January 2020 and a global pandemic on 11th March 2020. Governments around the world imposed several types of restrictions and lockdowns as a “non-pharmacological intervention” to prevent the spread of this life-threatening virus. This resulted in severe global social and economic disruption, including the biggest global recession.¹ The effect of “coronaphobia” has a direct impact on healthcare utilisation. COVID-19 infection has been less severe and less frequent in the pediatric population. Several published reports showed that there was a significant reduction in pediatric emergency visits and pediatric hospitalisations in most affected nations.^{2,3} Little is known about the admission rates in pediatric intensive care units (PICUs) from Low-middle income countries (LMICs) like Pakistan. The aim of this study was to describe the impact of COVID-19 on PICU admissions in a tertiary-care academic hospital. We retrospectively analysed admissions in PICU during the first wave of COVID-19 outbreak (April-December 2020) and compared the admissions from pre-pandemic same periods of 2018 and 2019. Total pediatric admissions were 3754, 3074, and 3109 and the corresponding PICU admissions were 403, 450, and 257 during 2018, 2019, and 2020, respectively. Incidence Rate Ratio (IRR) evaluated admission rates between two periods. We observed approximately 23% and 44% reduction in PICU admissions in pandemic year as compared to 2018 and 2019, respectively [IRR 1 (2019) 0.56 (0.49-0.65, p-value=0.007; IRR 2 (2018) 0.77 (0.66-0.89, p-value<0.001)]. Monthly admissions during the study period are shown in Figure 1.

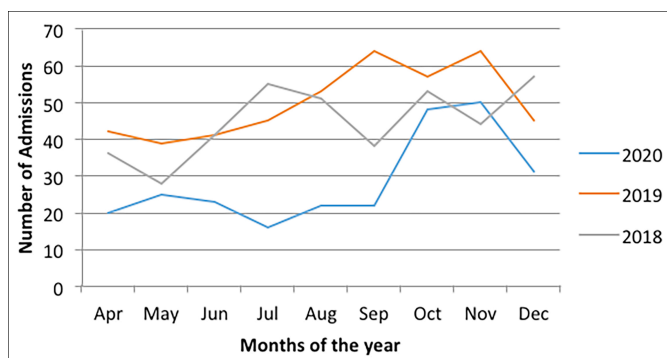


Figure 1: Monthly numbers of PICU admissions.

An almost similar declining trend was observed in other epidemiological reports of PICU admissions worldwide. There were multiple contributing factors during the pandemic for a reduction in PICU admissions. Studies from several countries during the lockdown period observed the greatest reduction (40-80%

from previous years) in admissions due to bacterial and respiratory-viral illnesses-related admissions in PICUs.^{4,5} Low incidence was most likely due to decreased transmission due to social distancing and the use of masks. The first stringent global lockdown measures completely paralyzed the movement of all kinds, with the closure of schools and no recreational activities, with a consequent significant decrease in the incidence of trauma-related admissions in PICUs.

The main limitation of this study is its retrospective single-center design.

In conclusion, we observed a significant decrease in pediatric critical care related-illnesses during first wave of the COVID-19 pandemic.

CONFLICT OF INTEREST:

The authors declared no competing interest.

AUTHORS' CONTRIBUTION:

AH: Conceived the idea, design the study, wrote first draft and provided final approval of manuscript.

MK: Executed data analysis and interpretation, critically reviewed the manuscript and provided final approval of manuscript.

MTJ: Reviewed the literature, performed critical analysis and provided final approval of manuscript.

All authors approved the final version of the manuscript to be published.

REFERENCES

- Shrestha N, Shad MY, Ulvi O, Khan MH, Karamchic-Muratovic A, Nguyen UDT, et al. The impact of COVID-19 on globalisation. *One Health* 2020; **11**:100180. doi: 10.1016/j.onehlt.2020.100180.
- Zee-Cheng JE, McCluskey CK, Klein MJ, Scanlon MC, Rotta AT, Shein SL, et al. Changes in pediatric ICU utilisation and clinical trends during the coronavirus pandemic. *Chest* 2021; **160**(2):529-37. doi: 10.1016/j.chest.2021.03.004.
- Araujo OR, Almeida CG, Lima-Setta F, Prata-Barbosa A, Colleti Junior J. Brazilian research network in pediatric intensive C. The impact of the novel coronavirus on brazilian PICUs. *Pediatr Crit Care Med* 2020; **21**(12): 1059-63. doi: 10.1097/PCC.0000000000002583.
- Stera G, Pierantoni L, Masetti R, Leardini D, Biagi C, Buonsenso D, et al. Impact of SARS-CoV-2 pandemic on bronchiolitis hospitalisations: The experience of an Italian tertiary center. *Children (Basel)* 2021; **8**(7):556. doi: 10.3390/children8070556.
- Vasquez-Hoyos P, Diaz-Rubio F, Monteverde-Fernandez N, Jaramillo-Bustamante JC, Carvajal C, Serra A, et al. Reduced PICU Respiratory admissions during COVID-19. *Arch Dis Child* 2021; **106**:808-11. doi: 10.1136/archdischild-2020-320469

Anwarul Haque¹, Muhammad Khalid² and Muhammad Tariq Jamil³

.....
¹Department of Pediatrics, Liaquat National Hospital and
Medical College, Karachi, Pakistan

²Department of Paediatrics, Nishtar Medical University &
Hospital, Multan, Pakistan

³Department of Critical Care & Anaesthesia, Peshawar Insti-
tute of Cardiology, Peshawar, Pakistan
.....

Correspondence to: Dr. Muhammad Tariq Jamil, Department
of Critical Care and Anaesthesia, Peshawar Institute of
Cardiology, Peshawar, Pakistan
E-mail: tariqjamildr@hotmail.com
.....

Received: October 11, 2021; Revised: December 14, 2021;
Accepted: December 25, 2021

DOI: <https://doi.org/10.29271/jcpsp.2022.06.829>

• • • • •