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Comparing clinical presentation, viremia, and immunological factors at various severity presentations in hospitalized children affected by COVID-19: A cross-sectional study

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Abstract

Background and Aims: Although SARS-CoV-2 infection usually leads to mild COVID-19 in children, sometimes it causes serious complications, especially in those with underlying diseases. Several factors have been identified in determining disease severity in adults, and limited studies have been conducted in children. The prognostic implications of SARS-CoV-2 RNaemia as an important factor in determining disease severity in children are not well understood.

Methods: In this study, we aimed to prospectively assess the relationship between disease severity and immunological factors and viremia in 47 COVID-19 hospitalized children. In this research, 76.5% of children experienced mild and moderate COVID-19, while 23.5% experienced severe and critical forms of the disease.

Results: The presence of underlying diseases in different groups of pediatric patients differed significantly from each other. On the other hand, clinical symptoms such as vomiting and chest pain as well as laboratory parameters including erythrocyte sedimentation rate were significantly different in different groups of patients. Viremia was seen in only two children, and this had no significant relationship with the severity of COVID-19.

Conclusion: In conclusion, our data confirmed that COVID-19 severity differed in SARS-CoV-2 infected children. Some clinical presentation and lab data parameters were different in various presentation of patients. Viremia was not associated with severity in our study.

KEYWORDS

COVID-19, paraclinical data, pediatrics, SARS-CoV-2, severity, viremia

patients. Our results suggest that ESR is the only factor that distinguishes COVID-19 disease severity among immunological factors and, in contrast to many studies in adult, no significant association was observed between viremia and disease severity in children.

AUTHOR CONTRIBUTIONS

Marzieh Jamalidoust: Conceptualization; project administration; software; supervision; visualization; writing—original draft; writing—review and editing. **Seyedeh Sedigheh Hamzavi**: Conceptualization; funding acquisition. **Eslam Shorafa**: Conceptualization; investigation; supervision. **Mandana Namayandeh**: Data curation; methodology. **Laiba Batool**: Data curation; visualization. **Seyedeh Narges Abootalebi**: Data curation; investigation.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

The project has been approved by Shiraz University of Medical Sciences (Ethics code Number: IR.SUMS.REC.1400.691). All authors acquiesced to the final version of the manuscript.

TRANSPARENCY STATEMENT

The lead author Marzieh Jamalidoust, Seyedeh Sedigheh Hamzavi affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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