ACUTE HYPERINFLAMMATION IN PEDIATRIC COVID-19 – A CASE SERIES

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BACKGROUND

COVID-19 (disease due to SARS-CoV-2 infection) was first defined as a pandemic in March 2020. The involvement in pediatric population baffled clinicians worldwide. In July 2020, the American College of Rheumatology propounded the first version of the *Clinical Guidance for Multisystem Inflammatory Syndrome in Children Associated with SARS-CoV-2 and Hyperinflammation in Pediatric COVID-19*. The vast majority of children with SARS-CoV-2 presents mild or no symptoms, with excellent outcomes. A rare part of them, though, develops acute hyperinflammation or a late complication called multisystem inflammatory syndrome in children associated with SARS-CoV-2 (MIS-C). While the latter definition is spread throughout pediatricians, the former still confuses the average physician as it overlaps with the clinical presentation of COVID-19: fever, respiratory or multisystem involvement in patients with comorbidities.

CASE REPORT

We present two of our case series of more than 90 suspected cases of MIS-C or hyperinflammation due to COVID-19. Both cases have in common fever, ferritin above 500 ng/mL, positive COVID-19 PCR (nasopharyngeal swab) and organ dysfunction. **Case 1:** A 2-month-old male baby presents to the ER with fever, 12 days of vomiting and 7 days of diarrhea, with hypovolemic shock and metabolic acidosis. After acute infectious diseases were excluded, a ferritin level of 1507 ng/mL, GGT 440 U/L, and positive COVID-19 PCR was discovered. In addition to shock management, human immunoglobulin up to 2 g/kg was administered with no clinical-laboratorial response. After methylprednisolone 1 mg/kg/day was administered, the patient presented improvement in laboratory levels and no new episode of diarrhea. **Case 2:** A 5-month-old baby, with holoprosencephaly, hospitalized by congenital anomalies, developed respiratory dysfunction with the need of supplementary oxygen, fever and diarrhea, with a positive COVID-19 PCR. Ferritin level of 575 ng/mL and D-dimers 2.66 ug/mL. After use of methylprednisolone 1 mg/kg/day, in 24 h, oxygen suspension was proceeded.

CONCLUSION

Acute hyperinflammation due to COVID-19 in the pediatric population is a new concept first introduced in July 2020, by the American College of Rheumatology. As it supposedly does not present a good response to immunoglobulin infusion (in opposition to the classic MIS-C), it is important to the physician to acknowledge this pathology and be aware of the suggested management. Immunosuppressive dose of methylprednisolone (1–2 mg/kg/day), anakinra or tocilizumab is the treatment of choice. One of our cases had been given immunoglobulin infusion with small to none clinical or laboratory response. The two reported cases developed a great clinical response to methylprednisolone, and the stepped-up treatment was not needed.

KEYWORDS

Hyperinflammation, MIS-C, Pediatric, COVID-19.