Reactivation of Human Herpes Virus 6 and Acute Liver Failure in Multisystem Inflammatory Syndrome

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To the Editor: The newly emerging multisystem inflammatory syndrome in children (MIS-C) is associated with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in pediatric population. It can lead to multiorgan failure and shock requiring admission to intensive care unit [1]. SARS-CoV-2 seems to be a trigger of the inflammatory disorders with an abnormal immune response [2]. Acute liver failure (ALF) revealing MIS-C has rarely been reported in the literature [3].

We report here a case of a 4-y-old female with no chronic medical conditions who presented with a 3-d history of fever, abdominal pain, and diarrhea. She was admitted for a generalized seizure with hypotension. Physical examination showed skin rash, oral mucositis, blood shot eyes, peripheral edema, and hepatomegaly. The shock was vasoplegic and responded to high doses of norepinephrine. Laboratory assessment revealed ALF [prothrombin (19%) and factor V (14%)], elevated liver enzymes (AST: 13,740 U/L, ALT: 5613 U/L), and hyperinflammation, including elevated CRP (146 mg/L), D-dimer (20,780 ng/mL), fibrinogen (3.7 g/L), and procalcitonin (90 ng/mL) with lymphopenia (660 cell/mm³). The main viral infection agents, drug-induced hepatotoxicity, autoimmune hepatitis, and metabolic disorders were excluded. Polymerase chain reaction (PCR) of SARS-CoV-2 was negative. Antibody against SARS-CoV-2 and human herpes virus 6 (HHV6) and PCR in the skin cutaneous lesion were positive. Serologic test for HHV6 confirmed past infection. The diagnosis of MIS-C associated with the reactivation of HHV6 was established. The child required mechanical ventilation, vasopressors, corticosteroids, and immunoglobulins. She was discharged after 12 d with subnormal lab tests.

This observation suggests that the clinical course of MIS-C may be deteriorated by HHV6 reactivation. HHV6 has been thought to be a trigger of hyperinflammation in Kawasaki disease [4]. MIS-C shares some physiopathologic features with Kawasaki disease [1]. To our knowledge, this is the first report of an association between MIS-C and HHV6 reactivation.

Declarations

Conflict of Interest None.

References

1. Jiang L, Tang K, Levin M, et al. COVID-19 and multisystem inflammatory syndrome in children and adolescents. *Lancet Infect Dis.* 2020;20:e276–88.
2. Suratannon N, Dick WA, Chatchatee P, Hagan PMV. COVID-19 in children: heterogeneity within the disease and hypothetical pathogenesis. *Asian Pac J Allergy Immunol.* 2020;38:170–7.
3. Cantor A, Miller J, Zachariah P, DaSilva B, Margolis K, Martinez M. Acute hepatitis is a prominent presentation of the multisystem inflammatory syndrome in children: a single-center report. *Hepatology.* 2020;72:1522–7.
4. Okano M, Luka J, Thiele GM, Sakiyama Y, Matsumo S, Purtillo DT. Human herpesvirus 6 infection and Kawasaki disease. *J Clin Microbiol.* 1989;27:2379–80.

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