Persistent Viral Shedding after SARS-CoV-2 Infection in an Infant with Severe Combined Immunodeficiency

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To the Editor: A 5-mo-old female child born to third degree consanguineous parents presented with recurrent fever episodes for 1 mo. She was a full term born baby with birth weight 2.54 kg, adequate immunization, and no undernutrition (weight - 6 kg, length - 64 cm). She had recurrent oral thrush and ulcers for 3 mo. On examination, pallor, oral thrush, and hepatosplenomegaly were noted. Investigations revealed high ESR with hilar prominence in chest radiograph. Gastric aspirate CBNAAT for tuberculosis became positive. COVID-19 antigen test and RT-PCR were positive. Antitubercular drugs were started and she was discharged once clinically improved.

Within a few days, she was readmitted with high-grade fever, vomiting, and loose stools with increasing hepatosplenomegaly. COVID-19 antigen test was persistently positive even after 30 d. Investigations showed neutrophilic leucocytosis with markedly elevated inflammatory markers, transaminitis, hyponatremia, hypoalbuminemia, and negative COVID-19 antibody. Second-line inflammatory markers were also elevated with aneurysm in left main coronary artery. She was diagnosed with multisystem inflammatory syndrome in children and was treated with intravenous immunoglobulins and anticoagulants.

In view of high fever spikes, chronic oral candidiasis, protracted diarrhoea, mycobacterial infection, and persistent viral shedding, she was screened for immunodeficiency, which showed low IgM/IgA and reduced T-cell markers suggestive of T-B+NK+SCID. A pathogenic homozygous nonsense variation in exon 3 of the *IL7R* gene confirmed the diagnosis. The patient is showing persistence of viral shedding even after 180 d of infection.

Despite defective adaptive immunity, children with SCID can present with dysregulated hyperimmune response [1].

The median duration of viral RNA shedding after coronavirus infection is 15 d, ranging from 5–37 d [2]. However, viral shedding from the upper respiratory tract is prolonged in immunosuppressed postrenal transplant recipients [3]. Prolonged viral shedding even after 180 d in a child with SCID indicates the need for prolonged protective measures for immunocompromised patients.

Declarations

Consent to Participate Written informed consent was obtained from the parent.

Consent for Publication Parents signed the documents for publishing the information.

Conflict of Interest None.

References

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