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Severe neutropenia in infants with severe acute respiratory syndrome caused by the novel coronavirus 2019 infection



To the Editor:

Infection with severe acute respiratory syndrome caused by the novel coronavirus 2019 (SARS-CoV-2) and resulting coronavirus disease 2019 (COVID-19) is a global pandemic.¹ Pediatric cases have some peculiarities, such as milder clinical manifestations and different laboratory abnormalities.² A systematic review on laboratory data identified 12 articles, with a total of 66 pediatric patients.³⁻¹⁵ Lymphopenia was found in only 3% of children, whereas lymphopenia often is described in adult patients.^{16,17} Neutropenia was recorded in 6% of cases, but it was never less than $0.500 \times 10^9/L$ in this population.³

We describe a 23-day-old and a 39-day-old infant with mild COVID-19 and severe neutropenia who were cared for at our tertiary care referral pediatric hospital. They both came to medical attention with low-grade fever and mild respiratory symptoms with a history of contact with an infected person or persons. At admission, leukocyte and neutrophil counts were normal, nasopharyngeal swab tested positive for COVID-19, and co-infection with influenza-like viruses was excluded. On the fifth day and days after the beginning of symptoms, the 39-day-old girl and the 23-day-old girl developed severe neutropenia, with a nadir of $0.244 \times 10^9/L$ neutrophils and $0.482 \times 10^9/L$ neutrophils, respectively (Figure). No other alterations on routine examinations were recorded and the neutrophil values improved without clinical complications.

The presence of isolated severe neutropenia has not been described in children with COVID-19. This finding is noteworthy, because postinfectious transient neutropenia has been associated with many other viral infections in infancy, which might share pathogenic mechanisms.^{18,19} Moreover, the evidence of neutropenia in neonates and infants could be another manifestation

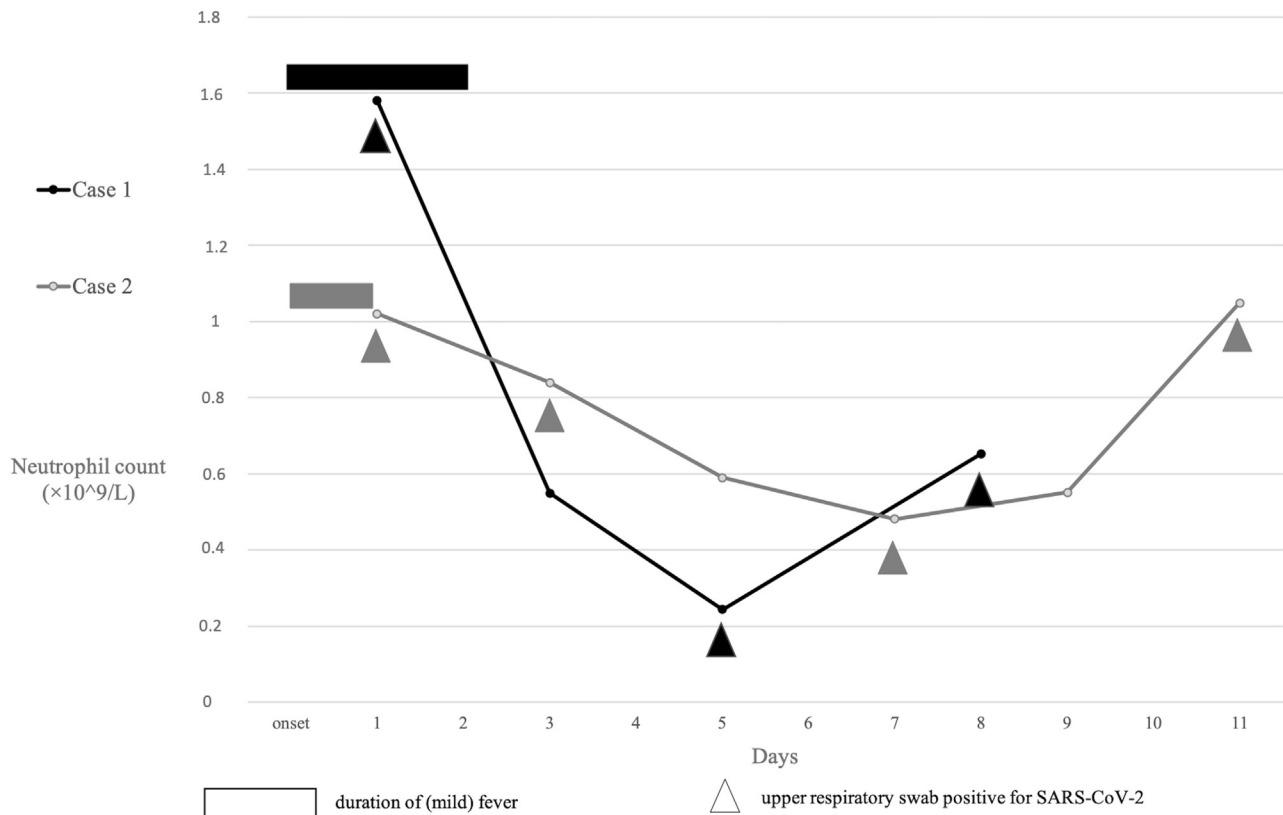


Figure. Absolute neutrophil counts in two infants with SARS-CoV-2 infection.

of the age-related different immunologic response to SARS-CoV-2 infection.

Complete blood counts might be indicated 5-7 days after illness onset to detect neutropenia. We hope to alert providers to evaluate children, especially the youngest, with evidence of new symptoms during the second week after onset of illness to exclude severe neutropenia and possible secondary infection.

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Missed or delayed diagnosis of Kawasaki disease during the 2019 novel coronavirus disease (COVID-19) pandemic



To the Editor:

Due to “stay-at-home” orders and the risk of novel coronavirus disease 2019 (COVID-19), many parents now hesitate or fear seeking in-person consultations for their children. This has led to reductions in emergency department visits and hospital admissions for other critical illnesses. In addition, healthcare providers have focused on COVID-19 management during the pandemic. Because of Bayesian

thinking, other diseases may be underdiagnosed or undergo delayed treatment.

Because COVID-19 now leads as the probable diagnosis for first-line providers encountering febrile patients, the potential for missed or late diagnosis and treatment of Kawasaki disease in children is particularly concerning.¹ Prompt diagnosis of Kawasaki disease and treatment with intravenous immunoglobulin (IVIG) prevents coronary artery aneurysms (CAA).^{2,3} Without timely treatment, CAAs could occur in up to 25% of children with Kawasaki disease.³

We respectfully remind caregivers of the following principles for the care of children with suspected or definite Kawasaki disease: (1) Keep a high suspicion for Kawasaki disease in all children with prolonged fever, but especially in those younger than 1 year of age. (2) Administer IVIG within 10 days, and ideally within 7 days, from onset of fever. (3) In the presence of ongoing systemic inflammation, children with Kawasaki disease presenting with greater than 10 days of fever and/or CAA may warrant IVIG treatment. (4) Continue to obtain recommended echocardiograms according to published guidelines.³ (5) Watch for late manifestations of Kawasaki disease, review the clinical history, and seek pediatric cardiology consultation.^{4,5} (6) In the case of delayed diagnosis, refer to the American Heart Association management guidelines or contact an expert in Kawasaki disease.³ (7) Offer telemedicine services, remote echocardiogram, and direct-to-consumer visits that allow for nonverbal communication when evaluating children with confirmed or suspected Kawasaki disease.⁶⁻⁸

With this, we hope to avoid a future surge in the prevalence of CAAs in patients due to missed or delayed diagnosis of Kawasaki disease.

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