Increased data accumulation from COVID-19 cases in children is needed

A novel coronavirus was identified as the cause of a cluster of pneumonia cases in China at the end of 2019 and has rapidly spread worldwide. As of March 7, 2021, the coronavirus disease 2019 (COVID-19) pandemic has resulted in more than 11.6 million cases and more than 2.6 million deaths. Data from laboratory-confirmed large cohorts from China, Italy, and the United States suggest that children aged less than 18 years comprise only 1–2% of all COVID-19 cases, however, epidemiologic data in other countries are limited.

Previous reports suggest that pediatric COVID-19 cases might be less severe than adult cases and that pediatric patients show different symptoms from adults, however, the disease is relatively severe among infants and children with underlying conditions. Dong et al. described 728 laboratory-confirmed pediatric COVID-19 cases in China. The median age was 10 years, and more than 90% of the patients were asymptomatic or had mild (symptoms with acute upper respiratory tract infection) to moderate symptoms. Bellino et al. analyzed 3,836 pediatric COVID-19 patients in Italy (1.8% of total patients). The median age was 11 years and the disease was asymptomatic in 39.0%, paucisymptomatic (dry cough, general malaise, low-grade fever, tiredness) in 24.4%, mild (uncomplicated upper respiratory tract viral infection) in 32.4% of cases, and severe (e.g., pneumonia, hypoxia, dyspnea) in 4.3% of cases. Meanwhile, severe cases were recorded particularly in children aged 6 years old and below (10.8%). A lower risk of disease severity was associated with increasing age, whereas a higher risk was associated with underlying medical conditions. The most frequently reported epidemiologic history was relationship with a familial cluster, followed by contact with an index adult case.

Arslan et al. have reviewed 404 “suspected” pediatric COVID-19 patients in a single center in Turkey, and revealed the clinical characteristics of 176 confirmed COVID-19 cases from those children (43.6% of suspected cases), while they also assessed the predictors of PCR positivity. Of the confirmed cases, 59 (33.5%) were asymptomatic; cough, fever, sore throat, and loss of smell/taste were common symptoms in symptomatic patients. Nineteen of the symptomatic cases had abnormal chest X-ray findings. Close contact with COVID-19 positive family members and sore throat increased the polymerase chain reaction (PCR) positivity by 23.8 and 5.0 times, respectively, while positivity decreased by 0.4 times if the fever was over 38°C. These data are largely consistent with previous reports, and they contribute to the body of data from pediatric patients with COVID-19.

Three patients were diagnosed with multisystemic hyperinflammatory syndrome in children (MIS-C). This disease was initially documented as having Kawasaki disease-like features and appears to be a rare complication of COVID-19. Patients with MIS-C present with persistent fever, fatigue, and a variety of signs and symptoms, including multiorgan involvement and elevated inflammatory markers. Meanwhile, there was a lag of several weeks between the peak of COVID-19 cases within the communities and the rise of MIS-C cases. Interestingly, two out of three cases in this study were negative for reverse transcription PCR in the early stages of the disease and were diagnosed with serological tests.

In the ongoing pandemic, an increased number of SARS-CoV-2 variants of concern (VOCs) have been noted in some countries. VOCs are more transmissible compared with previously circulating variants. Moreover, COVID-19 vaccines have not been introduced in majority of children. Thus, clinicians should maintain a high index of suspicion for pediatric COVID-19 cases and monitor the progression of the illness.

Disclosure

The author declares no conflict of interest.

Yoshinori Ito

Department of Pediatrics, Nagoya University Graduate School of Medicine, Nagoya, Japan

E-mail: yoshi-i@med.nagoya-u.ac.jp

References

1. World Health Organization. Weekly epidemiological update. 9 March 2021. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports
2. CDC COVID-19 Response Team. Coronavirus disease 2019 in children -United States, February 12-April 2, 2020. MMWR. 2020; 69: 422–6.
3. Dong Y, Mo X, Hu Y et al. Epidemiology of COVID-19 among children in China. Pediatrics 2020; 145: e20200702.
4. Bellino S, Punzo O, Cristina M et al. COVID-19 disease severity risk factors for pediatric patients in Italy. Pediatrics 2020; 146: e202009399.
5. Arslan G, Aktüürk H, Duman M. Clinical characteristics of pediatric COVID-19 and predictors of PCR positivity. Pediatr. Int. 2021; 63: 1055–1061.
6. Feldstein LR, Rose EB, Horwitz SM et al. Multisystem inflammatory Syndrome in U.S. children and adolescents. N. Engl. J. Med. 2020; 383: 334–46.