



Experts shed more light on COVID-19-related inflammatory syndrome in children

by Melissa Jenco, News Content Editor

Editor's note: For the latest news on COVID-19, visit <https://www.aapublications.org/news/2020/01/28/coronavirus>.

Experts are shedding more light on a rare but serious inflammatory syndrome linked to COVID-19 that is affecting children.

A [Centers for Disease Control and Prevention \(CDC\) webinar](#) on Tuesday detailed symptoms, demographics and treatment approaches for a 38-case cohort in the United Kingdom and a 33-case cohort from Cohen Children's Medical Center in New York.

Last week, the CDC released a [case definition](#) for multisystem inflammatory syndrome in children (MIS-C) that includes fever, laboratory evidence of inflammation, severe illness requiring hospitalization with multisystem organ involvement and no alternative plausible diagnosis. Criteria also include being positive for current or recent SARS-CoV-2 infection by reverse-transcriptase polymerase chain reaction (RT-PCR), serology or antigen test; or COVID-19 exposure within the four weeks prior to the onset of symptoms.

Presenting symptoms in addition to fever

In the cohort from the U.K., which has a similar case definition, about 75% of the patients experienced shock, 59.5% had diarrhea, 57% had abdominal involvement, 54% had a rash, 51% had myocardial involvement, 51% required oxygen, 38% had acute kidney injury and 32% had respiratory symptoms, according to Michael Levin, M.B.E., Ph.D., professor of pediatrics and international child health at Imperial College, London.

In the New York cohort described by James Schneider, M.D., chief of pediatric critical care medicine at Cohen Children's Medical Center, about 97% of patients had gastrointestinal symptoms, 76% had shock, 70% had acute kidney injury, 58% had neurocognitive symptoms, 58% had myocardial involvement, 52% required oxygen, 52% had respiratory symptoms, 48% had coronary artery abnormalities.

The doctors also detailed laboratory findings such as elevated C-reactive protein, fibrinogen, procalcitonin, d-dimer, ferritin and lactic acid dehydrogenase and neutrophils and reduced lymphocytes. Overall, "lab results that really reflect a very active inflammatory system," Dr. Schneider said.

MIS-C has been compared to Kawasaki disease, and 64% of the New York cohort met the criteria for Kawasaki. However, Drs. Levin and Schneider noted that MIS-C patients included older children. They also had higher inflammatory markers, as well as higher rates of shock, coronary abnormalities and abdominal issues.

Link to COVID-19

In both cohorts, there were mixed results for SARS-CoV-2 PCR and immunoglobulin G (IgG) tests. Evidence of past infection was more common than evidence of acute infection.

Demographics and risk factors

The median age was 11 years in the U.K. group and 8.6 years in the New York group and just over 60% of patients were male in each. The U.K. cohort also included significantly more black patients compared to the population.



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While the cohorts included several patients with asthma and some with obesity, most of the patients in each group did not have underlying conditions.

"Based on what we've seen in our cohort of 33 ... there really do not seem to be any definitive underlying medical conditions that predispose children to this syndrome," Dr. Schneider said. "I think obviously as we continue to collaborate and pool our data, we may be able to find some other trends."

Treatment

Patients in each cohort received supportive care. In the U.K. group, all patients required fluid resuscitation, 62% received intravenous immunoglobulin, and 51% received corticosteroids.

In the New York group, all patients received intravenous immunoglobulin and 30% received a second dose. About 88% received aspirin, 70% received methylprednisolone and 42% received enoxaparin.

Both presenters said children responded well to treatment. There was one death in the U.K. cohort and none in the New York cohort.

Report suspected cases

Clinicians should report suspected cases to their state, local or territorial health departments even if the patient also fulfills all or part of the criteria for Kawasaki disease.

Resources

- [CDC 24-hour Emergency Operations Center, 770-488-7100, and COVID-19 website for health care professionals, http://bit.ly/2VMAxi6](#)
- [After-hours phone numbers for health departments](#)
- [Information about COVID-19 from the AAP Red Book](#)
- [Information about COVID-19 from the AAP](#)
- [Information for parents from HealthyChildren.org on COVID-19](#)