

Editorial

Important COVID-19 update –New life-threatening syndrome in pediatric patients?

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On May 4, 2020, the Department of Health, NY, USA, issued a statement regarding a newly recognized COVID-19 multisystem inflammatory syndrome affecting children.^[1] A day later, Mayor Bill de Blasio called it a “concern” in his daily news conference and asked all similar patients below the age of 21 years to be reported urgently.

Presenting features included fever, rash, abdominal pain, and redness of eyes. It seems that some sort of inflammation is responsible for resultant shock and multiorgan failure. This is similar to the report from Italy of inflammatory lung injury seen by them in COVID-19 patients.^[2,3]

An 8-year-old health boy reported was normal till the last week of April 2020.^[1] At that time, he started having fever and diarrhea, which are both commonly known to be associated with COVID-19 infection. He responded temporarily to Tylenol prescribed by the pediatrician. But he remained weak. Few days later, he was found to have cyanosis, weak pulse, and required CPR at home and was rushed to the hospital, where he was put on ventilatory support. The Cohen Children’s Hospital located in Nassau County, NY, has seen a similar clinical picture in 40 children and Long Island Children’s Hospital reported the same in a dozen more. Jane Newburger, director of the Kawasaki Program at Boston Children’s Hospital, told NBC News this new ailment was being seen in multiple cities throughout the United States.^[4]

The transition from being totally well to being so ill as to require ventilatory support is a short 5 days. After doing multiple tests, the common thread is COVID-19 positivity. And the intriguing part is that sometimes only the child is positive, the rest of the family living in the same “bubble” are free of the infection.

The symptoms remind us of toxic shock syndrome and/or Kawasaki disease –an autoimmune syndrome activated by viral infections which is known to progress to life-threatening multiorgan damage.^[5,6]

These reports show that COVID-19 can be dangerous to children, dispelling the myth that the current pandemic was not affecting the younger population.

Following are important messages from the above news:

1. COVID-19 test was done only after the cardiac arrest in the 8-year child mentioned above, at a time, he was already on ventilatory support
2. In some of these children, COVID-19 PCR was negative and diagnosis was made on antibody testing

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3. While viruses typically test positive for several weeks, maybe their copy number might be at levels below PCR detection –a phenomenon that is well known in the management of cancers
4. Whether the antibody tests for IgG or IgM do not seem to matter because titers of both start rising at the same time
5. Onset of this syndrome could be delayed, by which time the offending infective virus is gone –making it a possible delayed immune dysregulation phenomenon
6. The mechanism for delayed effects of COVID-19 virus could be similar to the acute respiratory distress syndrome (ARDS) that we have previously seen with dengue, increase in permeability of alveolar-capillary membrane resulting in edema of the alveoli as well as the interstitial spaces causing compromised pulmonary function and hypoxia
7. This could make COVID-19 shock syndrome the fourth cause (after sepsis, pneumonia, and dengue) of ARDS in pediatric patients admitted to ICU
8. Early restoration of adequate tissue perfusion and oxygenation will be critical
9. Simultaneously, attention needs to be paid to avoid unnecessary fluid infusions, lest we flood the lungs and accelerate the ARDS process.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

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