Clinical management of severe COVID19 disease in New York City

Karen M. Wilson, MD, MPH

Debra and Leon Black Professor and Division Chief of General Pediatrics

Vice-Chair for Clinical and Translational Research

Icahn School of Medicine at Mount Sinai

Kravis Children's Hospital

Objectives

- Review the experience of one New York City hospital
- Describe COVID-19 and MIS-C patients
- Share our approach to these patients

NYC, Children, and COVID-19

- **Initial impact:**
  - Very low census (total N~40)
  - Transition to providers in adult care
  - Admission of older patients to pediatric floors
- **Pediatric COVID-19 cases early on:**
  - Few seriously ill
  - A cluster of later onset illness in immunocompromised children (oncology)
    - Mostly admitted for fever, ruling out sepsis, and not critically ill
  - Few patients admitted for other reasons who tested positive
    - Appendicitis
  - Neonatal fever
    - Mild illness in neonates

Pediatric Inflammatory Multisystem Disease

- Total N~22
- Most admitted to the ICU
  - Newer cases seem to be less severe
- Ages 30 months-20 years
- Symptoms:
  - Fever >4 days
  - Abdominal pain
  - Diarrhea
  - Rash
  - Conjunctivitis
- History of Covid exposure or positive test 2-3 weeks prior
  - Most are PCR negative and antibody positive
  - Most have recovered from initial illness, if any
- All have been previously healthy

Clinical features

- Quick progression to hypotension and shock in some patients
- Not fluid responsive, many required pressors
- Findings:
  - ↑ ferritin, ↑CRP (200-300s), ↑ D-Dimer, ↑ troponin, ↑ BNP, ↑ IL-6
  - Cytokine panels helpful in guiding therapy
  - ↓ Lymphocytes
  - Many with AKI and/or increased LFTs
  - Many with echo abnormalities- coronary artery involvement LV dysfunction
- Support:
  - Room air, intubation, ECMO

Treatment and course

- Therapeutics:
  - IVIG
  - Tocilizumab
  - Anakinra
  - Lovenox (depending on D-Dimer)
  - Remdesivir only for PCR positive patients
- Course:
  - Most have slowly improved and been discharged
  - Close follow up with PCP rheumatology, cardiology, hematology
- Outcomes:
  - All have been doing well at their 1-3 week follow up visits
  - Most cardiac anomalies normalized
  - Most off lovenox; will be on ASA

Precautions

- Special droplet:
  - Surgical mask for usual care/N95 for aerosolizing procedure
  - Face shield
- Contact:
  - Gown
  - Gloves
- Donning and doffing procedures
- Hand hygiene/cleaning
- N95 often worn for all patients
  - Extended use and limited reuse protocols
- Negative pressure rooms only required for frequent aerosolizing procedures
  - BiPap, CPAP, HF
  - Intubation/bronchoscopy/BAL
  - Nebulizers, chest PT, deep suctioning, tracheostomy

Removing precautions

- Inpatient Setting
  - The patient has been afebrile (< 100.0 oF) for at least 72 hours without use of antipyretics AND
  - Marked improvement in symptoms (e.g., cough, shortness of breath) AND
  - Negative results of a molecular assay (PCR) for SARS-CoV2 from at least **two** consecutive nasopharyngeal swab specimens collected > 24 hours apart
- Outpatient Setting
  - At least 10 days have passed since the onset of symptoms OR if asymptomatic, at least 10 days have passed since the date of the first positive COVID-19 diagnostic test AND
  - The patient has been afebrile (< 100.0 oF) for at least 72 hours without use of antipyretics AND
  - Marked improvement in symptoms (e.g., cough, shortness of breath)
- Patients who are discharged before the two consecutive negative PCR tests are performed do not require repeat testing if 4 weeks have passed from the onset of symptoms AND the patient remains free of signs and symptoms of COVID-19
- Patients do not require repeat testing for clearance in the outpatient setting except for pre-approved indications in consultation with the hospital Infection Prevention Department (e.g. surgery, chemotherapy)

Reflections

- Very similar to cases reported from Italy and the UK
- Not completely consistent with Kawasaki Disease or Toxic Shock Syndrome
  - Important to consider this a separate entity and treat based on patient's data
  - We have seen cases of actual KD too!
- Appears to follow infection by 2-3 weeks
- Still very rare- ~176 cases in NYS (out of 360,000 positive patients)