NIH Workshop on Post Acute Sequelae of COVID-19: Lessons Learned

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COVID-19 Globally

106.9 million cases
2,332,386 deaths

Sources: NPR.org; Worldometer. Data as of 2/8/2021
Rationale for Workshop and Further Study:

• Enormous global burden of SARS-CoV-2 infection
  • Even a small proportion with persistent effects represents a significant public health issue

• Distinct opportunity to understand longitudinal effects following known SARS-CoV-2 infection

• Potential to lend insights towards understanding persistent effects of other known and suspected viral infections
Persistent Symptoms in Patients After Acute COVID-19
A Carfi, R Bernabei and F Landi for the Gemelli Against COVID-19 Post-Acute Care Study Group

SJ Halpin, C McIvor, M Sivan et al.

Symptom Duration and Risk Factors for Delayed Return to Usual Health Among Outpatients with COVID-19 in a Multistate Health Care Systems Network — United States, March–June 2020
MW Tenforde, LR Feldstein et al. for the IVY Network Investigators and CDC COVID-19 Response Team

Post-Discharge Persistent Symptoms and Health-Related Quality of Life After Hospitalization for COVID-19
E Garrigues, Y Nguyen et al.
NIH Workshop on Post-Acute Sequelae of COVID-19, Dec. 3-4, 2020

• Workshop goal:
To summarize knowledge on post-acute manifestations of COVID-19 and to identify key knowledge gaps necessary to fill

• Workshop co-chairs:
Dr. Emily Erbelding (NIAID/NIH)
Dr. Adaora Adimora (University of North Carolina)
Workshop Structure:

• **Day 1:**
  • Clinical observations
  • Viral pathogenic features and host immune response
  • Perspectives

• **Day 2: Breakout sessions**
  1. Neurologic/Psychiatric
  2. Cardiovascular
  3. Pulmonary
  4. Renal/GI/Metabolic
  5. Immunologic/Rheumatologic
  6. Pediatric

Charge:
• Identify key knowledge gaps and questions that need to be answered in each focus area and discuss potential approaches/considerations for filling these gaps
Key Takeaways: Clinical

- Presenters from post-COVID clinics reported:
  - Common: cognitive impairment and mental health concerns
  - Disproportionate representation from racial/ethnic minorities (US)
  - Lack of healthcare coverage, certain social issues are frequent barriers to care (US)

- Multiple phenotypes likely present including but not limited to:
  - Post-ICU syndrome: well characterized
  - “Long COVID”: persistent symptoms after both severe and non-severe illness, needs further study

- WHO case reporting form, ICD-10 code (U09: Post-COVID Condition)
Key Takeaways: Virus and Host

• Immune responses to SARS-CoV-2 may play a role in post-acute manifestations but much is unknown
  • Potential impact of:
    • Autoantibodies
    • Antibody and T cell responses
    • viral dynamics
    • host genetics

• MIS-C is associated with certain immune phenotypes compared with pediatric COVID

• Preclinical study: animal models, *in vitro* models
Fundamental Gaps/Needs:

• Need common vocabulary/terminology and case definitions
• Define epidemiology (including incidence and prevalence of various phenotypes in full spectrum of patients and in diverse communities)
• Describe the various phenotypes of this condition, their clinical spectra, and their natural histories
Fundamental Gaps/Needs:

- What are the pathophysiologic mechanisms of disease?
  - Viral factors, host factors
- Identify risk factors (including comorbidities, severity of initial disease, viral and host genetics, host immune response)
- How do therapeutics given during early disease and vaccines alter outcomes?
- Engagement and partnership with community and equity must be a priority.
Steps Forward

• Writing up proceedings of workshop
• Continue to engage with key stakeholders (including WHO, CDC, clinicians, patient community)
• Facilitate ongoing collaboration and knowledge sharing between workshop participants
• NIH has issued a Notice of Intent to Publish Research Opportunity Announcements: https://covid19.nih.gov/sites/default/files/2021-02/PASC-Pre-Notice.pdf