PACCARB 2023

Sankar Swaminathan, MD
Infectious Diseases Division
University of Utah School of Medicine

Pandemic Preparedness and the Immunocompromised (IC) Host

- Almost 2 million new cancer diagnoses per year in the US and over 600,000 deaths
- More than 40,000 organ transplants in 2021
- Millions of doses of immune suppressive biologics for non-malignant diseases
- Risk of infection, morbidity and mortality greatly increased in this population
- Social and economic costs of infectious diseases in these populations remains extremely high

Prevention

- Immunization (Influenza, pneumococcal, COVID-19)
  - Immunization rates even in these high-risk patients remains suboptimal
  - Need for education of both physicians and patients
  - Timing with respect to chemotherapy and transplant important
- Access
  - Availability of vaccine needs to be prioritized for IC patients
  - Availability of high-dose flu vaccine not guaranteed
  - Logistics of IC host-specific regimens (provider/patient education, access)

Prevention

- Chemoprophylaxis
  - Necessary for exposed patients
  - Patients in high risk situations, poor immune response to vaccination
  - Current model to receive prescriptions/vaccines is cumbersome and inequitable due to access limitations. (tele-visits, delivery of vaccines/drugs to patients?)
- PPE
  - Masks and other PPE availability in pandemic setting for IC patients
  - Patient education re PPE and air filtration at home

Diagnosis

- Availability of rapid testing
  - Expand availability of rapid testing outside traditional doctor's office/clinic
  - Expand role of pharmacies, government/state clinics
  - Availability of rapid viral panels currently limited
- Resistance testing of flu strains critical for this population
  - Resistant mutants likely to develop and slow to clear in IC patients
  - Current limitations in sequencing both at population level and individual patients. Facilitate LDTs and decentralization of testing

Diagnosis

- Bacterial AMR is a major concern, especially for empiric treatment of post-influenza pneumonia in IC patients
  - High prior antibiotic exposure and colonization with AMR organisms
  - Complexity of Gram negative organism resistance patterns and available drugs makes accurate and timely diagnosis critical
- Rapid PCR based identification of MRSA, VRE and ESBL, etc. needs to be universally available

Treatment

- New anti-influenza drugs essential
  - No real alternative for neuraminidase inhibitors (oseltamivir) in IC patients
  - Baloxavir not recommended for immune compromised due to risk of rapid emergence of resistance
  - Limited parenteral drugs
- We need another Operation Warp Speed to develop drugs, approve them under EUAs and subsidize cost

Treatment

- Access to treatment poses special issues for immune compromised
  - Urgent Care clinic is not always a good model
    - Telemedicine and delivery of care to patient
  - Cancer care and transplant may be insured, but outpatient drugs and administration often fall into a hole
- Consider a registry of patients with special considerations in pandemic setting
  - Could facilitate care delivery and education during emergency

Final thoughts

- Many of these treatment decisions are extremely complex
  - The choice of antibiotics for AMR Gram negative organisms is a perfect example, difficult even for experts
  - In a tertiary care hospital Infectious Disease consultation is readily available
  - A telephone ID consult service nationally available would be tremendous
    - But this will not be sustainable or useful if dependent on volunteers
    - Federal subsidy and payment will be essential for proper staffing