ASP-Infectious Diseases Society of America Young Investigator Award in Geriatrics

AWARD RECIPIENT

Lauren Brett Caram, MD

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PROJECT

"Prospective Respiratory Epidemiologic Surveillance Study: Viral Infections in a Long-Term Care Facility Population"

MENTORSHIP TEAM

Keith S. Kaye, MD
Christopher W. Woods, MD
Kenneth E. Schmader, MD

Viral respiratory infections cause considerable morbidity and mortality among older adults, especially those living in long-term care facilities (LTCF). The burden of illness caused by respiratory infections in older adults living in LTCF is due to resident frailty and underlying disorders and to the social crowding facilitated by the physical plant and social objectives of LTCF. In addition to their effect on residents, outbreaks have the potential to impact the public health in the community at large, as many of these viruses are also readily transmitted between patients and staff. It is clear that viral respiratory tract infections are a significant source of medical consultation, hospitalization, and health care expenditure in this population, but the extent and true impact of disease have yet to be fully recognized.

Previous studies of influenza like illness (ILI) detect a viral etiology in up to 25% of cases. However, these studies are often compromised by misclassification due to diagnostic limitations. Complicating matters further, clinical predictors are notoriously unreliable in older adults and traditional diagnostics are cumbersome and slow, often making the diagnosis a retrospective one.

Novel diagnostic strategies, including multiplex reverse transcription polymerase chain reaction (PCR), make it possible to diagnose viral respiratory infections in a timely and clinically relevant manner. Results from traditional viral diagnostic modalities (e.g., culture and serology) are often delayed and limited as to types of virus detected or overall sensitivity, thus minimizing their impact on the acute clinical course of the patient. Improvements to these traditional techniques and emerging molecular diagnostic techniques now offer the potential to test for both a greater breadth of viruses and to detect them with increased sensitivity and timeliness. Early identification of viral illness allows for possible implementation of measures to disrupt an outbreak and optimize therapy.

In this prospective cohort of long-term care patients, we will investigate the presence of respiratory viruses in surveillance of symptomatic and asymptomatic LTCF residents to:

1. Show that novel molecular diagnostic platforms (e.g., PCR) are a valid, sensitive, and specific way to diagnose respiratory viral infections when compared to traditional methods (i.e., viral culture) in an older adult population.
2. Determine the rates of respiratory viral infection and concurrent colonization in the LTCF population.
3. Determine the attack rate for respiratory infection among close contacts of sentinel ILI cases.

Through the continued mentorship and training obtained by working with Kenneth E. Schmader, MD, Keith S. Kaye, MD, and Christopher W. Woods, MD, I will advance my understanding of the epidemiology of viral respiratory infections in the aging population. I will also explore how early diagnosis with novel molecular platforms might contribute to improvements in containment, prevention, and therapy of respiratory infections in the at-risk older adult. My long-term goal is to develop skills in clinical trials so that I can conduct effective, prospective, interventional trials in geriatric medicine geared toward: 1) prevention of respiratory viral infections in the older adult; 2) control of viral infectious outbreaks in LTCF; and 3) assessment and cost effectiveness of respiratory viral vaccines.

The ASP-Infectious Diseases Society of America Young Investigator Award in Geriatrics will allow me to expand my education and contribute to the evolving field of geriatric infectious disease. This award, and the support of my mentors, will enable the initiation of a study that will help further define the respiratory diseases and infectious challenges faced by older individuals.