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Value of RVP in clinical settings: older adults

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Community-acquired pneumonia is the fifth leading cause of death in people aged >65 years (Loeb, 2003). While bacterial infections remain the most common etiology, viruses account for 1–23% of cases (File, 2003). Factors that may contribute to viral respiratory infections among older adults include waning cellular immunity, decreased B cell responses to new antigens, and decreased respiratory function (Falsey and Walsh, 2006). Despite the significant impact of viral respiratory tract infections on morbidity and mortality, their diagnoses are often not sought due to difficulty in obtaining sputum or nasopharyngeal aspirates from frail older adults, poor test sensitivity, and delay in receiving culture results. Additionally, clinicians are often reluctant to seek laboratory confirmation of a viral etiology because of a perception that a viral diagnosis would not change patient management. With the commercialization of nucleic acid amplification tests, more laboratories are adopting molecular tools which offer increased sensitivity, decreased time to detection and ability to detect viruses that are difficult to culture. More diverse and comprehensive diagnostic modalities have enabled epidemiologists to better characterize upper and lower respiratory tract illness in older adults, and their associated morbidities.

Respiratory virus infections in older adults cannot be accurately distinguished based on clinical signs and symptoms alone. Viruses such as respiratory syncytial virus and rhinoviruses can both present with nasal congestion and cough, and for patients with chronic obstructive pulmonary disease, also cause wheezing. Of all the respiratory viruses, the clinical presentation of influenza A infection is the most characterized, with fever, myalgias, and gastrointestinal symptoms as the most common features. The burden of influenza A infection increases among older patients with chronic diseases. One study reported that approximately 70% of influenza pneumonia hospitalizations occurred among older adults, and patients >85 years had the highest rates of respiratory and circulatory influenza-associated hospitalizations (Thompson et al., 2004). These statistics underscore the importance of a prompt, accurate, and definitive diagnosis in order to reduce morbidity and healthcare costs associated with influenza illness. Also, early recognition of influenza A infection among older adults living in extended care facilities can help reduce transmission by implementation of infection control measures, prophylaxis, and vaccination.

Over the last decade, investigators have evaluated the role of non-influenza respiratory viral illnesses in the older population. Seemingly “insignificant” viruses causing the common cold are now being appreciated as major causes of illness, medical consultation, and hospitalization (Nicholson et al., 1997). A prospective study of older adults living at home demonstrated that rhinovirus was the most common virus implicated in acute upper respiratory infections. In fact, the majority of patients with rhinovirus and respiratory syncytial virus infections progressed to develop lower tract disease. Similarly, a study of 608 healthy, community-dwelling older adults identified respiratory syncytial virus as a significant pathogen causing respiratory illness (Falsey et al., 2005). The authors observed that those patients hospitalized from RSV and influenza A infections experienced similar lengths of stay, management in intensive care units, and mortality. Glezen et al. (2000) identified RSV, parainfluenza, rhinovirus, and coronavirus in >10% of older adults hospitalized with acute respiratory conditions. These studies illustrate the importance of applying multiplexed molecular assays capable of simultaneously detecting multiple viral pathogens to provide clinicians, laboratorians, and epidemiologists tools to better characterize viral respiratory infections, prevent their dissemination, and optimize patient therapy.

It is clear that viral respiratory tract infections are a significant source of medical consultation, hospitalization and health-care expenditure in older adults. Emerging molecular diagnostic techniques now offer the potential
both to test for a greater breadth of viruses and to detect them with increased sensitivity and rapidity. Viruses other than influenza are being recognized as causes of significant morbidity in the older adult, and their identification will be important to disrupt an outbreak especially for residents in long-term care facilities. Additionally, better characterization of upper and lower respiratory tract infections will afford the opportunity to characterize new and emerging viruses that may be candidates for future vaccines.

Conflict of interest statement
None declared.

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