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COVID-19 in older adults

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ABSTRACT

The impact of COVID-19 varies by age group, and it has become clear that individuals over 65 years are disproportionately impacted by COVID-19 both in terms of severity of illness and mortality. Atypical presentations in older adults may result from pathophysiologic changes during aging and immune dysregulation because of the cumulative impact of chronic comorbidities. Herein we review the different clinical presentations of illness for older adults, the unique challenges faced by this population, and strategies for treatment.

INTRODUCTION

Understanding how different age groups are impacted by COVID-19 has rapidly evolved since the start of the pandemic. It has become clear that those over 65 years of age are disproportionately impacted by COVID-19 both in terms of severity of illness and mortality.[1–6] In March 2020, some of the earliest documented cases at a US long-term care facility in Kings County, Washington,[1] and New York City incidence and mortality[2] between February and June 2020 were significantly higher in older adults. Studies and data have continued to confirm higher risk for mortality and morbidity in those older than 65 years of age.[3–6]

ATYPICAL PRESENTATIONS OF COVID-19 IN THE OLDER POPULATION

Atypical presentations in older adults may result from pathophysiologic changes during aging.[3,7] Immunosenescence or "age-related dysfunction of the immune system, which leads to enhanced risk of infection"[8] demonstrates a functional decline in immunity. Clinical presentation differs in older adults, and COVID-19 symptoms may need to be evaluated in a slightly altered approach for this patient population.

Fever

Mean body temperature decreases with age giving older patients a lower baseline temperature.[7] A fever of 38.3°C (101°F) or higher in geriatric patients implies serious infection and warrants immediate attention.[7,8,9] The Infectious Disease Society of America recommends modification of fever definition in older adults as a single oral temperature over 100°F, 2 oral repeat readings over 99°F, or an incremental increase of 2°F over baseline temperature.[9] Thus, fever may not be a sufficient determinant symptom of COVID-19 in older adults, especially in the frailest older adults including those in senior living facilities who are at high risk for infection.

Cold and cough symptoms

It is difficult to differentiate acute cough, shortness of breath in older adults with chronic lung condition. Loss of taste or smell is also difficult to differentiate in older patients as many commonly used medications or neurodegenerative processes can cause such sensory impairment.[10]

Fatigue and body aches are also common in older adults and hence nonspecific. Some minor symptoms such as sore throat, new onset congestion, nausea, vomiting, or diarrhea can be more valuable as diagnostic criteria for COVID-19 illness in older adults.[11]

Delirium or altered mental status as a symptom

In a multicenter study from 7 US emergency departments, delirium was one of the presenting symptoms in 226 (28%) of 817 patients with COVID-19 and exclusively the primary presenting complaint in 16% of patients with a mean age of 77.7 years.[11] Of note, 37% of patients lacked classic COVID-19 symptoms of fever or shortness of breath. Age greater than 75, residence in an assisted living facility or nursing home, prior use of psychoactive medication, hearing and vision impairment, stroke, and Parkinson disease were predictive of delirium. In addition, delirium was

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associated with hospitalization, intensive care unit (ICU) stay, short-term rehabilitation, and mortality.[11]

Rates of delirium in patients with COVID-19 vary from 25% in hospitalized patients to 66% in ICU patients.[6,12] Despite this, current guidance does not include delirium as a symptom for diagnosis of COVID-19.[13]

COVID-19 hospital management strategies, such as restricting visitors, isolation, personal protective equipment for caregiving personnel, and physical and chemical restraints to manage delirium can contribute to disorientation in patients and increase the risk for development of delirium, prolong the duration, and lead to poor outcomes and mortality.[13]

Falls and frailty

Estimates of the occurrence of falls as a presenting symptom of COVID-19 have ranged between 23.5% and 32%.[14,15] Frailty and prefrailty as characterized by a simple frailty scale[16] have been associated with increased severity of COVID-19 per prospective study data from Wuhan, China.[17] Of note, frail status was also associated with lower lymphocyte count and specifically lower CD8+ counts (see Prognostic indicators below) illustrating the interplay of frailty, immunosenescence, and COVID-19.[17]

Anorexia

The symptom of anorexia can lead to dehydration and failure to thrive in older adults and remains an important presentation of COVID-19.[11,18]

COVID-19 presentation in patients above age 85

Falls and sudden or new onset fatigue in patients with good baseline function status should be considered a symptom of illness.[18] Specifically, in a large (N = 76) French case series of COVID-19 patients older than 85 years, most common presenting symptoms were asthenia, (76.3%), fever (75%), and delirium (71%).[18]

Prognostic indicators

C-reactive protein peaks and lymphocyte nadirs have been found to be independent serological predictors of death, as were shortness of breath and oxygen desaturation symptom predictors in the oldest COVID-19 patients.[18] Of note, these patients had a median Clinical Frailty Scale score of 6 indicating moderate frailty. Male sex, history of cardioneurovascular disease, low albumin, serum creatinine, and elevation of troponins and brain natriuretic peptide have also been noted as additional predictors associated with death in this patient population.[18]

Imaging

It has been reported that 40% of older COVID-19 patients have no radiographic abnormalities.[19]

UNIQUE CONSIDERATIONS AND STRATEGIES

Hospitalized older adults with delirium

Delirium during hospitalization (ICU/non-ICU) is closely related to mortality and poor functional outcome in older adults.[20] Delay in detection and cognitive sequela can have a negative impact on patient rehabilitative potential.[20] Pharmacological management of delirium in the elderly has been shown to have significant adverse effects.[21] In view of this, pharmacological delirium management in the elderly has only been advised for those at risk of self-harm owing to threat of extubation or interruption of essential medical therapy.[13]

The Elder Life Program is an entirely non-pharmacological-based prevention strategy shown to significantly decrease delirium rates in the hospitalized older population with an emphasis on cognitive impairment, sleep deprivation, dehydration, visual and hearing impairment, and immobility.[22] A COVID-19-specific toolkit for the Elder Life Program is available at https://www.hospitalelderlifeprogram.org/for-clinicians/covid19-resources.

Strict lock down measures for residents of Continuing Care Retirement Communities (residential spectrum of independent living, assisted living, and memory care facilities) result in increased rates of social isolation and related depression, anxiety, worsening of behavioral manifestations of dementia, as well as delirium among other mental health challenges.[23] Clinicians should be cognizant of the significant role played by social isolation in these residential settings and avoid "quick fix" potentially inappropriate medications in the older patient as much as possible as this can paradoxically lead to worsening mental status and falls.

Staying indoors extensively can also potentially disrupt sleep-wake cycles. These altered circadian rhythms can in turn be a trigger of delirium and at the molecular level alters immune systems including CD4/CD8 cells and cytokine levels[24] thereby impacting physiological reserve to fight infections. Hospital Elder Life Program interventions can assist to prevent delirium by preserving sleep as well as cognitive preservation.[22]

Patients with dementia and COVID-19

In older patients with moderate to advanced cogni-

tive impairment, the pandemic has been particularly daunting. With this "double hit" of COVID-19 and dementia, it is difficult to consistently implement public health measures of consistent social distancing, mask wearing, and hand hygiene.[24] Further, in hospitalized patients, pre-existing diagnosis of dementia is an independent risk factor for mortality.[20] Personal protective equipment and restricted visitation policies are disorienting and scary. Increased behavioral manifestations have resulted from this milieu placing additional strain both on older patients with dementia and their families. The Alzheimer's Association has a 24/7 help line for clinicians, patients, and families (https://www.alz.org/help-support/caregiving/coronavirus-(covid-19)-tips-for-dementia-care).

Multidisciplinary care

Successful older patient care is multidisciplinary by nature. Physicians, nurses, geriatric specialists, social workers, pharmacists, physical and occupational therapists work together to deliver care. Many of these services in the home setting have been disrupted by the pandemic. Therefore, it is imperative to think creatively for alternative home care such as using virtual platforms, encouraging home exercises, maintaining consistent nutrition (especially protein intake), hydration, and enlisting family support.

Communication nuances

Lip reading is critical for communication with older patients with impaired hearing. Face shields and masks have regrettably taken this out of the equation.[13] Speaking clearly and asking for verbal confirmation are key strategies to overcome this barrier. In a world where healthcare is increasingly delivered virtually, senior patients' comfort with technology should be carefully considered. Families and caregivers can potentially help as well as harnessing technology geared toward seniors. Many older patients may be financially disadvantaged and after retirement are no longer in the workforce making affordability an additional challenge.

FUTURE FOR OLDER PATIENTS AND COVID-19

The poignant reality remains that COVID-19 still does not have a definitive cure and that older adults are at higher risk for associated morbidity and mortality. Given this, it may be prudent to determine overall goals of care and care preferences for any acute critical illness scenarios in advance so that the patient's wishes can be honored.[13,25]

DISCLOSURES

The authors report no relevant financial relationships which, in the context of their contributions, could be perceived as a potential conflict of interest.

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