



Vulnerability and Fragility Expose Older Adults to the Potential Dangers of COVID-19 Pandemic

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Dear Editor-in-Chief

The COVID-19 coronavirus pandemic is the main global health disaster of our time. Older people are more susceptible to COVID-19 infection, caused by a defective immune response to infectious challenges. In addition, comorbid illnesses, malnutrition, drugs, and stress predispose the elderly to an increased risk of coronavirus by declining immune function. To mitigate the effects of COVID-19, preventive measures must be taken seriously to facilitate the appropriate and timely transfer of infected older adults to intensive care units.

Aging is a natural and inevitable process, which presents new challenges to health care for most countries. It results from an accumulation of unrepaired cellular and molecular damage over time, which often leads to a gradual decrease in physical and mental disabilities and, ultimately, an increased risk of disease (1).

The world's population aged 60 yr and over will today increase from more than 800 million to 2 billion by 2050 (2). This proportion is estimated at 23% and 9% in developed and developing countries, respectively (3). Though, the prevalence of hypertension, diabetes and heart disease, malnutrition, functional impairments and depressive symptoms gradually increased with age (4,5). The COVID-19 pandemic is the main health and economic disaster of our time. Since its appear-

ance in Asia, the virus has spread to all continents, causing many victims, essentially among the elderly. Though, from Dec 31, 2019, until Apr 12, 2020, 1 734 913 cases of COVID-19 have been reported, including 108 192 deaths, particularly the oldest living in nursing homes. The countries reporting most deaths of COVID-19 are the United States (20608), Italy (19470), Spain (16353), France (13832), United Kingdom (9875) (6). Nonetheless what all of these countries have in common is that they have experienced a high proportion of older people who need long-term care for life-threatening infections. A recent study found a high death rate in Italy and China in the elderly infected (7). Besides, the elderly become more susceptible to infections; as people age, they are prone to comorbid conditions such as kidney failure, diabetes, hypertension, and arthritis (4,7,8). Italian people who died from COVID-19 suffered from multiple pre-existing diseases, such as ischemic heart disease (30%), diabetes (35.5%) and cancer (20.3%) (7). The WHO reports displayed also that the elderly is characterized by the emergence of complex diseases such as chronic obstructive pulmonary disease, diabetes and depression (9). Currently, the fatal COVID-19 in the elderly is related to chronic diseases, malnutrition, drug use, impaired cognition, social factors, over-

crowded residence and malnutrition. The relationship between these risk factors is complex; for that COVID-19 infection results from the accumulation of multiple risk factors, which are contributing to declining immune function. Comorbid conditions can increase the risk of infection by impairing immune function, which in turn can be weakened by smoking, alcohol and malnutrition (7-10). Increased susceptibility to infection results from an underlying dysfunction of an aged immune system (8,10). The immunological dysfunction associated with aging may explain an insufficient response against COVID-19 and the high rate of deaths (8,10). These findings will increase the incidence of COVID-19 in frail older adults unless effective preventive and curative measures are taken seriously in developing countries.

In the same period, African countries recorded 13666 cases; the countries reporting most cases are South Africa (2028), Egypt (1939), Algeria (1825), and Morocco (1545) (8,10). These results can be attributed to a low rate of the elderly on this continent. Nevertheless, the next few weeks will be decisive for African elders since the pandemic is just beginning. Hence, functional disabilities, malnutrition, overcrowding, sociocultural, economic, institutional factors, and an already weak health care system will soon predispose this population to an increased risk of coronavirus (8,10).

Furthermore, the combination of comorbidities and immunosenescence in the elderly makes them prone to COVID-19, particularly in developing countries. The frailty syndrome often associated with malnutrition predisposes them to fatal infections, especially in retirement homes. Of course, poor immune responses to an infectious challenge increase the risk of morbidity and mortality. Faced with the vulnerability to infection, physicians should pay more attention to the elderly with a history of hospitalization or those living in long-term care homes. These findings force clinicians to exercise an increased sensitivity to detect signs of COVID-19 infection, to start effective treatment, even in the presence of sub-

tle signs and symptoms, pending adequate vaccination.

Geriatric syndromes were the best predictors of coronavirus danger than the presence or number of specific diseases. To alleviate the effects of COVID-19, curative and preventive measures must be taken seriously to facilitate the appropriate and timely transfer of infected older adults to intensive care units.

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Conflict of interest

The authors declare that there is no conflict of interest.

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