COVID-19 in Old-Age

Dear Sir,

The old-age population is increasing globally. In the middle of the SARS-CoV-2 pandemic, the potential issues in the geriatric group should be addressed and they should be under surveillance. SARS-CoV-2 causes mild disease in 80% of infected people, severe disease in 15%, and becomes critical in 5% of infected people who require intensive care. Ten percent of COVID-19 pneumonia develop adult respiratory distress syndrome and the old age people constitute this group who require hospitalization.[1] Yang *et al*. followed up 1099 patients with SARS-CoV-2 pneumonia, of which 15.1% were aged 60 years and above and 27% were severe.[2] Liu *et al*. studied 4021 COVID-19 cases in whom the mortality rate was 5.3%.[2] Thus, advanced age is a poor prognostic factor forSARS-CoV-2.

Comorbidities, changes in the elastic recoil pressure of the lungs with old age, decreased respiratory muscle strength, cough reflex, and the body's weak immune responses are the risk factors facilitating the development of pneumonia in old-age individuals. Virulence and the viral load add to the severity and mortality of COVID-19 in the geriatric population.

Aging causes a reduction in respiratory functions and respiratory muscle strength in the lungs. This, in turn, results in senile emphysema, reduction in respiratory center sensitivity to hypoxia, and exhaled nitric oxide levels. Both innate and acquired immunity decreases usage increases. Thus, old people become more prone to infection, malignancy, and autoimmune diseases.

As age progresses, the immune system becomes weak and old-age people get infected. Reduced ability of resistance, in turn, leads to infection and loss of homeostasis which results in acceleration of aging, and the vicious cycle continues.[3]

Yuan *et al*. suggested a poorer disease prognosis in old-age with COVID-19 infection with regard to the malnutrition based on geriatric nutritional risk index and advised to increase nutritional support.[4] Nutritional disorders in the old-age population and malnutrition due to the disease are associated with high mortality, morbidity, and delayed recovery in COVID-19 infection.[5]

Comorbidities such as diabetes, hypertension, chronic pulmonary, renal, cardiovascular, and cerebrovascular diseases, malignancies, obesity (body mass index ≥40 kg/m^2), and smoking increases the risk of COVID-19 mortality in the old-age population as they diminish the effect of the innate immune system and proinflammatory cytokines, resulting in adverse effects.[2] Interleukin-1-βa and tumor necrosis factor-alpha get deposited in metabolic tissues such as the pancreas which results in insulin resistance and β-cell damage as evidenced in diabetes.[2] The function of macrophages and lymphocytes is also impaired by metabolic diseases.

The antiviral activity of Type I interferon induces the viral replication limiting genes, and its reduced level causes cytokine storm and is a poor prognostic factor. B-cells exhibit reduced proliferation and differentiation in lymph nodes with aging. Eating disorders in old-age result in slower, less coordinated, less efficient immune responses and these make older adults more susceptible to developing infections.[6] Weak immune systems and cachexia make fever undetected in the geriatric population. It is always challenging to assess symptoms and implement isolation strategies in elderly patients with dementia.

The treatment protocol for old-age people with COVID-19 remains the same as for young patients. However, complications such as venous thromboembolism, catheter-related infections, pressure ulcers, and delirium incidence are high especially among patients who are in the intensive care unit and administered mechanical ventilation.

COVID-19 primarily affects the upper respiratory tract and lungs. It is always a challenge for the treating clinician to tackle the infection with regard to the treatment process and complication management as the mortality rates increase because of rapid multiorgan failure due to comorbidities such as hypertension, cardiovascular diseases, and diabetes in old-age patients. New treatment protocols and vaccination programs are being developed and discussed across the world and all these strategies should be able to reduce the disease burden and be productive in bringing a decline in the economic burden caused by the disease in the societies.

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Conflicts of interest

There are no conflicts of interest.

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