



COVID-19 in the Elderly and the Immunocompromised

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Dear Editor,

Coronavirus disease 2019 (COVID-19) is a respiratory disease that is transmitted mainly through respiratory droplets from an infected person to an uninfected person which means that the disease can be contracted when there is a contact between an infected person and an uninfected person or an uninfected person and the virus on surfaces that have been contaminated by an infected person (1). This is possible both before and after an infected person is symptomatic (1). World Health Organization stated on the 2nd of April, 2020 that 95% of the number of death cases recorded in the world so far from COVID-19 was recorded among those who were older than the age of 60 (2). Also, it was mentioned that about half of all the death cases recorded so far are 80 years of age or more (2). Furthermore, World Health Organization also stated that 8 out of 10 death cases occurred among people with underlying symptoms and those who have at least another disease such as those with cardiovascular diseases and other chronic underlying conditions before being infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (2).

There are quite a number of reasons why the older population is significantly affected by COVID-19 and some of the reasons are physiological changes related to maturing and ageing, reduced immune system ability, and multimorbidity. Meanwhile, young people are not invulnerable as 10% to 15% of people who are not up to 50 years have moderate to serious illness after being infected with SARS-CoV-2 (2). Although high mortality has been recorded among the elderly, it is worthy of note that there are also reports of people who are above the age of 100 who had been

admitted to medical clinics for COVID-19 case management and have now since made a total recuperation (2).

To determine why the immunity in the younger population is more dependable than that of the elderly, a study was conducted to compare the clinical signs and symptoms of COVID-19 between the elderly and the younger population. It was revealed that the most common symptoms among elderly subjects include cough, fever, dyspnea (difficulty breathing), and diarrhoea and this means that the younger population experience fewer symptoms. Some other common symptoms among the elderly who have been infected with SARS-CoV-2 include acute heart, kidney, and liver damages (3). Also, after the lymphocytes count of different population was estimated, the lymphocyte count was higher in the younger people than the elderly. It is worthy of note that a higher level of C-reactive protein (CRP) was also recorded among the younger population. In the elderly, there was an involvement of multiple long lobes and increased pneumonia severity index and this may be attributed to high rate of acute respiratory distress syndrome among the elderly. Furthermore, high mortality rates have also been recorded not only among the elderly but also among individuals with underlying conditions and symptoms such as heart and lung diseases, diabetes, dementia, and hypertension (4, 5).

Also, it has been reported that aged people who age healthily are less at risk of experiencing severe symptoms of the disease (1). Furthermore, hospitalization that may follow an infection may be among the contributory factors to the increased rate of infection remission among the elderly as the immunity of the younger population are usually stronger in the combat against infections (6). Even though the context of ageing can be associated with

a decline in adaptive and innate immunity (7), there are other contributory factors that can lead to an increased rate of disease manifestation and mortality among the elderly. One of the other factors is a phenomenon called immunosenescence which must have occurred in a lot of the older population.

Immunosenescence is an age-related remodelling of the immune system that can affect and decrease immune function. Immunosenescence has been linked to an increase in the mortality rate among the elderly population (8). Immunosenescence occurs mostly among individuals who are in their sixth decade of life and may result in loss of the ability of the immune system to effectively fight against infections (9). Meanwhile, Immunosenescence has been reported specifically to be among the factors why individuals in their sixth decade of life are vulnerable to some other diseases such as MERS, SARS-1, chikungunya virus (CHIKV) and the west Nile virus (WNV) (4). Meanwhile, studies have not established relationship between COVID-19 morbidity and immunosenescence in the elderly as the knowledge of Scientists about the subject of immunosenescence is still growing. Also, ageing can be associated with a reduction in the number of distributed immune cells in the body, mostly the T cells (10) and a very notable factor that leads to a reduction in the number of T cells in the elderly is the regression of the thymus (11). There have also been reports of a possible wide range of difference between the differential levels of Angiotensin-converting enzyme 2 in young and old which may be another possible reason for high mortality among the elderly when compared with the mortality rate among the younger population (12). Also, there has been a report about less vaccine efficacy in the elderly (13) and also a limited understanding of how to effectively generate effective immunity among the elderly (14). There is, therefore, a great need to devise special management methods to help the older population and other people who are immunocompromised as they are disproportionately negatively affected by the COVID-19 (1).

Footnotes

Authors' Contribution: The concept for this commentary was developed by Gabriel Ilerioluwa Oke, Emmanuel E Elebesunu, and Timothy Oluwatobi Fajobi developed the draft and prepared the manuscript. Gabriel Oke, Sarah Job Akpan, and Yusuff Adebayo Adebisi assisted with data collection and language edits. All the authors have read and agreed to the final manuscript.

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