



New view on older adults with COVID-19: comments on “SARS-CoV-2 and COVID-19 in older adults: what we may expect regarding pathogenesis, immune responses, and outcomes”

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Coronavirus disease 2019 (COVID-19) was first reported in December 2019 in China (Wang et al. 2020) and spread worldwide some months later. As of May 18, there are more than 4,000,000 cases of COVID-19 infection in about 200 countries and regions, leading to a death toll of about 300,000. Given that older adults are more susceptible to severe acute respiratory syndrome coronavirus (SARS-CoV-2), Nikolich-Zugich et al. (2020) summarized the pathogenesis and clinical characteristics of COVID-19 in older adults in detail. Age-related changes account for chronic comorbidities and slow the immune responses, causing more severe cases and complications in older adults. Nikolich-Zugich et al. (2020) provide many facilities for studies on COVID-19 in older adults and help clinicians have an overall understanding of these characteristics. However, some controversies exist, which are of concern.

Previous studies showed increased morbidity and mortality in older adults with COVID-19 (Wang et al. 2020). The case fatality in older adults varied from 0 to 35.6% (Table 1) in different regions (Chen et al. 2020b; Gold et al. 2020; Huang et al. 2020; Liu et al. 2020). It was higher in older adults than in younger adults in higher prevalence areas (Chen et al. 2020b; Gold et al. 2020). However, as far as case fatality was concerned,

there was no difference between the two age groups in lower prevalence areas (Liu et al. 2020; Huang et al. 2020). These results were consistent with our study on older adults with COVID-19 in Guangzhou (Xu et al. 2020). Though case fatality varied in different areas and seemed not to be different in some areas, the reasons are still unclear due to insufficient evidences. Knowing the reasons will be of great help in the prevention and control of COVID-19. Since delayed hospitalization may be contributed to poorer outcomes (Liang et al. 2020) and older patients suffer a high risk of death, early diagnosis and intensive care are particularly important (Chen et al. 2020a); these strategies require adequate medical policies and resources. However, no study has evaluated the role of medical policies and resources against COVID-19, and further research is needed. Studies in lower prevalence areas showed that the outcomes of older patients seemed not to be worse than that of younger patients. Older patients with COVID-19 could be treatable, and comprehensive assessment should be prompt.

In addition, pneumonia in older adults often present in an atypical fashion, which means the absence of fever and respiratory symptoms, while symptoms manifested outside the respiratory tract. In older patients with COVID-19, fever is the most common symptom, followed by cough, fatigue, pharyngalgia, expectoration, dyspnea, and others. Studies found no difference in fever or cough between the older and younger people (Chen et al. 2020b; Liu et al. 2020; Xu et al. 2020). Some patients were asymptomatic, and the ratio of asymptomatic patients seemed not to be different

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Table 1 Case fatality of COVID-19 patients in different studies

	Region	Total cases	Prevalence (‰)	Case fatality of the older (%)	Case fatality of the younger (%)
Chen T et al.	Wuhan, China	50,339 [#]	44.9	34.5	4.7
Gold JAW et al.	Georgia, USA	37701 [*]	35.5	35.6	6.7
Huang R et al.	Jiangsu, China	653 [#]	0.1	0	0
Liu K et al.	Hainan, China	168 [#]	0.2	5.6	5.3
Xu G et al.	Guangzhou, China	377 [#]	0.2	2.3	0

[#]Tencent News (2020) Real time tracking of COVID-19. <https://news.qq.com/zt2020/page/feiyan.htm#/global>. Access 18 May 2020

^{*}Worldometer (2020) COVID-19 coronavirus pandemic. <https://www.worldometers.info/coronavirus/>. Access 18 May 2020

between the older and the younger people. Several case reports showed atypical symptoms including falls, delirium, abdominal pain, and diarrhea in older patients, while olfactory and taste disorders were more likely to occur in younger patients (Giacomelli et al. 2020). Atypical is not a specific feature of older patients, and it may exist in younger patients. However, the atypical symptoms seem not to be the same between the older and the younger people. At present, the prevalence of atypical symptoms is still unknown due to insufficient literature. Atypical COVID-19 patients are with risks of transmission, and the neglect of atypical symptoms may delay the diagnosis and treatment of patients, which may be disastrous in older patients; therefore, special considerations should be paid to older atypical patients.

To date, there is no medication that specifically treats SARS-CoV-2; hence, there is an urgent to develop vaccines and anti-SARS-CoV-2 drugs. As described by Nikolich-Zugich, prevention is still the most important strategy to protect older patients from SARS-CoV-2 (Nikolich-Zugich et al. 2020). Actually, most of what is done currently is supportive treatment, which includes the treatment of comorbidities and complications. As severe cases and complications are more common, the treatment is more complicated in older patients, and it is inevitable to face the effects of drug combination and interactions. Therefore, it is necessary to weigh the pros and cons before treatment and select the optimal treatment strategy.

Surviving Sepsis Campaign recommended the empirical use of antibiotics in mechanically ventilated patients (Alhazzani et al. 2020). For others, it is still unclear when to start antibiotics. Although positive sputum culture is an important evidence for the diagnosis of bacterial infections, the unsatisfactorily low rate of positivity and long time taken to wait for the results do not

allow for the early identification. Respiratory viruses play crucial roles in triggering bacterial attack, and older adults are more susceptible to bacterial attack due to low immunity and high risk of aspiration. According to guidelines for treatment of community-acquired pneumonia (CAP), patients with influenza-positive CAP should be treated with antibiotics as soon as possible (Metlay et al. 2019); however, for COVID-19, how to identify bacterial infections and when to start antibiotics are yet to be clarified because COVID-19 is deadlier and spread faster than influenza. Moreover, since cases are likely to be severe, the use of antibiotics for older patients should be earlier. Further studies will be needed to identify the treatment effect of empirical antibiotics in COVID-19.

Malnutrition tends to be ignored in older patients. Older patients suffer from malnutrition, resulting either from physiological decline with aging or from nutritional dysfunction deteriorated by infections. This was echoed by the lower serum albumin in older COVID-19 patients than in younger patients (Chen et al. 2020b; Liu et al. 2020). While malnutrition was mentioned as hypoalbuminemia in these studies, the records of nutritional support therapy were lacking. Previous studies have suggested that hypoalbuminemia may impede recovery from illness. In light of the poor appetite commonly seen in COVID-19 and the increased caloric expenditure due to febrile nature of the disease, a close watch on the nutritional status should be warranted for these patients. Improving the nutritional status might have a positive effect on their prognosis; hence, further studies are needed for validation.

Although older COVID-19 patients suffered more severe cases and complications, the outcomes seemed not to be worse than those of younger patients if handled properly in lower prevalence areas. It will be helpful to

have a comprehensive understanding of the characteristics of COVID-19 for the prevention and treatment in older patients. Since studies on older patients are still insufficient, more studies are needed in the future.

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