

Comparison of clinical characteristics of elderly patients with COVID-19 with young and middle-aged patients in a COVID-19 hospital in Herat province of Afghanistan

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ARTICLE INFO	ABSTRACT
<p>Article type Case report</p> <p>Article history Received: 29 Jan 2023 Revised: 5 Feb 2023 Accepted: 24 Mar 2023</p> <p>Keywords Clinical Coronaviruses CURB-65 Herat Province Patients</p>	<p>Introduction: Coronaviruses are a large family of RNA viruses affecting mammals and birds. The first case of coronavirus in Afghanistan was recorded on February 24, 2020 in a 35-year-old male from Herat who had recently traveled to Iran. The clinical characteristics of elderly and young patients with COVID-19 that affects the respiratory tract may be different. This study reviewed and compared the clinical characteristics of young and elderly patients who were affected by the 2019 novel coronavirus in a COVID-19 hospital in the Herat province of Afghanistan.</p> <p>Methods: Clinical data of patients were collected from a COVID-19 hospital in Herat province of Afghanistan. The clinical characteristics of elderly patients were compared with young and middle-aged patients.</p> <p>Results: The study consisted of 52 patients that included 35 elderly patients (67.30%) and 17 young and middle-aged patients (32.69%). The universal symptoms in the two groups were fever followed by cough and sore throat accompanied by fatigue. The CURB-65 score for the elderly group was 3 (0-6) and for the young and middle-aged group it was 2 (0-7). The CURB-65 score of the young subgroup was lower than that of the middle-aged subgroup of patients ($P < 0.001$). The involvement of multiple lobes in the young and middle-aged group was lower than that of the elderly group ($P < 0.05$). There was no difference in single lobe involvement between the two groups. Old age and having underlying diseases (diabetes and chronic obstructive pulmonary disease) puts people at higher risk of COVID-19.</p> <p>Conclusion: Clinical characteristics between the young and elderly patients affected by the 2019 novel coronavirus in COVID-19 may be different, and this knowledge is crucial in diagnosis, treatment, and methods of control.</p>

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Introduction

The novel Coronavirus (2019-nCoV) is responsible for the outbreak of acute respiratory disease in China (Wuhan, Hubei Province) in December 2019 (1). The International Committee on Taxonomy of Viruses (ICTV) named this novel virus SARS-CoV2 (Severe Acute Respiratory Syndrome Coronavirus-2).

The Coronaviruses (CoVs), as the chief pathogen, predominantly targets the human respiratory system. In past CoVs outbreaks, which comprised SARS-CoV and Middle East respiratory syndrome (MERS)-CoV,

were identified as sources that severely threatened public health. Then in late December 2019, a group of patients were hospitalized and preliminary diagnosis was pneumonia due to an unidentified cause (2).

The current reported mortality for COVID-19 is approximately 3%, which is very low compared to 9.9% for SARS and 34.4% for MERS. Symptoms of COVID-19 appear after a latent period of 2 to 10 days (3). Until February 28, 2020; 83,652 people were infected with SARS-CoV-2 globally, and 2858

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died from COVID-19 with a mortality rate of 4.47% in China (Wuhan). The clinical characteristics of COVID-19 patients includes severe and even fatal pneumonia. In some cases, intensive care is needed, particularly in the elderly with underlying diseases (4). Among the first studies in Wuhan, China, it was shown that 28 (68%) of 41 confirmed cases had been discharged, and six (15%) had expired (5). In this study, we concentrated on clinical characteristics and compared young and middle-aged patients with elderly patients who recovered from the 2019 novel coronavirus disease in a COVID-19 hospital in Herat province of Afghanistan. Younger populations are more resistant to the coronavirus while older populations with more underlying diseases are more susceptible to this virus. Moreover, the mortality of young and middle-aged COVID-19 patients is lower than elderly patients (6). The main underlying diseases that increase a person's susceptibility to COVID-19 include cardiovascular disease, hypertension, diabetes, and cerebrovascular disease (7). In this study, we reviewed and compared the clinical characteristics of young, middle-aged, and elderly patients who were affected by COVID-19 from July 1, 2020 to August 5, 2020, and were hospitalized in a COVID-19 hospital in the Herat province of Afghanistan.

Materials and Methods

The cases of COVID-19 were confirmed by the hospital from July 1, 2020 to August 5, 2020. The number of cases enrolled into the current study is 52. We divided patients into two groups, the elderly group (≥ 50 years old) and the young and middle-aged group (< 50 years old). The software SPSS Statistics (version 25) for statistical analyses was used. The cases that

Table 1. Comparison of clinical characteristics of the two groups (Herat Regional Hospital)

Variable	Elderly (≥ 50 years old) (n=35)	Young and Middle-aged (< 50 years old) (n=17)	P
Age (years)	66 (50-85)	38 (17-50)	<0.001
Sex	62.85% male, 37.14% female	70.58% male, 29.42% female	0.148
Smoking history	4 (11.42%)	3 (17.64%)	0.563
Underlying Diseases			
Liver disease	0 (0)	0 (0)	-
Chronic kidney disease	2 (5.71%)	4 (23.52%)	0.237
Hypertension	11 (31.42%)	5 (29.41%)	0.621
Diabetes	7 (20%)	3 (17.64%)	0.461
Coronary heart disease	3 (8.57%)	0 (0)	-
Immunodeficiency	0 (0)	0 (0)	-
Clinical Symptoms			
Cough and sputum	8 (22.85%)	9 (52.94%)	0.489
Fever	22 (62.85%)	12 (70.58%)	0.007
Fatigue	11 (31.42%)	3 (17.64%)	0.376
Chest tightness, Difficulty breathing	9 (25.71%)	4 (23.52%)	0.311
Headache	6 (17.14%)	4 (23.52%)	0.654
Sore throat	4 (11.42%)	2 (11.76%)	0.348
Diarrhea	1 (2.85%)	0 (0)	-
CURB-65 score	3 (0-6)	2 (0-7)	<0.001
CT Results			
Multiple lobe lesion	9 (25.71%)	4 (23.52%)	<0.001
Single lobe lesion	1 (2.85%)	2 (11.72%)	0.232

were suspected of COVID-19 were divided into two groups. The first group had clinical characteristics and epidemiological history, and the second group did not have clear clinical characteristics and epidemiological history. Epidemiological history and clinical characteristics included respiratory symptoms, fever, cough, and shortness of breath. The patients' nasopharyngeal specimens were collected and sent to the central Covid-19 laboratory of Herat province. RNA from samples were extracted and underwent a one-step RT-qPCR for viral RNA detection (BGI's RT-PCR diagnostic kit, UAE) according to the manufacturer's instructions. The clinical decision to start appropriate antimicrobial therapy early can affect patient mortality and treatment costs and this issue is especially important in elderly patients. Clinically, older people usually have fewer non-pulmonary symptoms than younger people. CURB-65 criteria (blood pressure, respiratory rate, confusion, and urea age ≥ 65) were used to measure the severity of pneumonia. The CURB-65 score was divided into three classes: 0-2 low risk, 3-4 intermediate risk, and 5-8 high risk. According to this classification, COVID-19 patients who received any of the scores from the CURB-65 criteria would be treated either as an outpatient, inpatient, or in the hospital's ICU.

Results

The first COVID-19 case in the Herat province of Afghanistan was confirmed in a 35-year old male on February 24, 2020, who had recently traveled to Iran. From July 1, 2020, to August 5, 2020, the 52 patients who were enrolled into our study included 35 elderly patients (67.30%), and 17 young and middle-aged patients (32.69%) (Table 1).

For the elderly group the median age was 66 years, and for the young and middle age group, it was 38 years. Statistically significant difference between the young and middle-aged and elderly groups was $P < 0.001$ (Table 1). In our study of 52 patients with COVID-19, 36 (69.23.0%) were male and 16 (30.77.0%) were female (Table 1). The range of ages was 17–85 years. Nine (17.30%) lived in rural areas and 42 (82.69%) lived in the city. The most common clinical characteristics of the 52 patients with COVID-19 were fever (65.38%), and 22 (62.85%) of these patients were elderly, and 12 (70.58%) patients were young or middle-aged (Table 1). Cough and sputum was the next common clinical characteristic that affected 32.69% of patients, and 8 (22.85%) were elderly and 9 (52.94%) were young or middle-aged (Table 1). This was followed by 25% of patients who presented with chest tightness and difficulty breathing, and nine (25.71%) were and 4 (23.52%) were young or middle-aged (Table 1). The CURB-65 score for the elderly was 3 (0-6) and for the young and middle-aged, it was 2 (0-7). The score of CORB-65 belonging to the young and middle-aged group was lower than that of the elderly group ($P < 0.001$) (Table 1). Three (8.57%) of the elderly patients died, and 1 (5.88%) of the young and middle-aged group patients died (Table 1).

Comparison of laboratory results of chest CT (104 lung CT scans) between the two groups were performed. Involvement in multiple lobes in the young and middle-aged group was lower than in the elderly group ($P < 0.001$), and no difference was observed in single lobe lesions (Table 1). Comparing the chest CT scans between the two groups, it was observed that the young and middle-aged group had a lower involvement of multiple lobes compared to the elderly group, and this difference was statistically significant ($P < 0.001$).

However, there was no significant difference in the presence of single lobe lesions between the groups (Table 1). Among the patients, 8.57% of the elderly group (3 patients) and 5.88% of the young and middle-aged group (1 patient) died due to COVID-19 (Table 1).

However, it is important to note that the sample size is small, and further analysis is needed to draw definitive conclusions on mortality rates between the two groups. The CURB-65 score was used to assess the severity of pneumonia, and it was higher in the elderly group (median score of 3) compared to the young and middle-aged group (median score of 2). The difference in scores between the two groups was statistically significant ($P < 0.001$) (Table 1).

These results provide insights into the clinical characteristics and outcomes of COVID-19 patients in the Herat province of Afghanistan, highlighting differences between elderly and young/middle-aged individuals. It is important to properly analyze and discuss these findings in the context of existing literature and implications for clinical practice and public health interventions.

Discussion

This study reviewed and compared the clinical characteristics of young and elderly patients who were diagnosed with COVID-19 in a COVID-19 hospital in Herat province of Afghanistan. Universal symptoms at the start of COVID- disease are fever, cough, and bruising, and additional symptoms are sputum production, headache, bleeding, diarrhea, indigestion, and lymphopenia (8).

Clinical indications on the chest ultrasound included findings of pneumonia although abnormal presentations, such as acute respiratory syndrome, acute heart failure, and fibrotic pulmonary lesions, resulting in death were also reported in such patients. In some cases, multiple lesions of ground glass opacity were observed in the subpleural regions of both lungs (fluid accumulation in the space between the lungs and the chest cavity), causing added inflammation (9).

Treatment of some cases with interferon inhalation showed no clinical effect and on the contrary, worsened with the development of pulmonary opacities (2). Based on the results of chest radiographs, in some cases, involvement of the upper lobe of the lung indicated that increasing shortness of breath was associated with hypoxemia (deficiency of oxygen in the arteries) (10). Based on phylogenetic analysis, the World Health Organization classifies COVID-19 as a group of $\beta 2$ viruses (11). The COVID-19 genetic sequence showed that it was more than 80% similar to SARS and 50% similar to the MERS virus (5), and both SARS and MERS viruses originate from bats (12). The National Health Commission of the People's Republic of China has recommended the use of interferon-alpha and lopinavir/ritonavir. This recommendation is based on previous research showing that these drugs reduced mortality in patients infected with SARS. In children, administration of methylprednisolone for a maximum of five days is limited to 1 to 2 mg/kg/day (13).

In this study, the clinical information and recorded deaths of elderly patients was compared with young and middle-aged patients. We observed in elderly patients that males were infected more than females (14). This finding is similar to the results of the study conducted in Wuhan, China, and the most common symptoms at onset of illness were reported as fever and cough (5). The less common symptom in this study, similar to the study done in China was diarrhea. In our study, three patients (8.57%) died in the elderly group, and one patient (5.88%) died in the young and middle-aged group.

The rate of death in the young and middle age groups was lower than in the elderly group, and the rate of death between the young and middle-aged patients was significantly lower in the young subgroup. Supportive treatment included azithromycin, chloroquine, zinc, and paracetamol tablets, and acute patients received oxygen therapy and mechanical ventilation (15).

Conclusion

We observed in elderly patients that males were infected more than females. In our study, the most common symptoms of COVID-19 patients were fever and cough, and the less common symptoms were diarrhea. The CORB-65 score of the young and middle-aged group was lower than that of the elderly group ($P < 0.001$).

Moreover, three patients (8.57%) of patients in the elderly group died and one patient (5.88%) of the young and middle-aged group died (Table 1). The prevalence of COVID-19 has been identified as a global health emergency and the number of confirmed reports indicates an increasing rate of infection related to this disease. Quarantine is not enough to control the disease, hence; effective treatments and vaccines must be developed and there is no doubt that more research is needed to determine the exact mechanism of human-to-human and animal-to-human transmission to facilitate the development of an efficacious vaccine.

Author contributions

HAH collected data for this study and authored the manuscript. SHZE and OM offered guidance and assistance as well as analysis of the results. EM assisted and offered guidance related to statistical analysis.

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Conflict of interest

The authors declare that they have no conflict of interest.

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