

Clinical Features of Patients with COVID-19 in Herat Province of Afghanistan

Afganistan'ın Herat İlindeki COVID-19 Hastalarının Klinik Özellikleri

Aziz-ur-Rahman NIAZİ¹, Mir Ibrahim BASİM² Ahmad AMİRNAJAD³ Sayed Abo Bakar RASOOLİ⁴, Khadejah OSMANİ⁵, Nasar Ahmad SHAYAN⁶, Shafiq Ahmad JOYA⁷

ABSTRACT

This study focuses on clinical and epidemiological features of COVID-19 positive cases in Herat province of Afghanistan. A total of 334 COVID-19 patients (68.0% male; 32.0% female) were recorded between February 24 to April 20, 2020, in Herat province. The mean age of patients was 34.6 ± 13.9 years and most patients (34.4%) were 20-29 years old. Healthcare workers accounted for 14.4% of cases; 10.5% patients lived in rural areas and 89.5% lived in the city. The most frequent symptoms at onset of illness were cough (74.9%), fever (54.5%) and dyspnea (43.4%); 1.8% patients had diabetes, 1.5% had hypertension, 0.6% had cardiovascular diseases, 0.6% had hyperlipidemia, and 0.3% was immunocompromised. The average time between the onset of clinical manifestations and patients' referral to hospital was 6.5 ± 3.5 days. The case-fatality rate was 2.1%, which mostly occurred in the elderly. This work may serve as a reference for future COVID-19 studies in the region.

Keywords: COVID-19, SARS-CoV-2, Herat, Afghanistan, clinical features

ÖZ

Bu çalışma Afganistan'ın Herat ilinde COVID-19 pozitif vakaların klinik ve epidemiyolojik özelliklerine odaklanmaktadır. Herat ilinde 24 Şubat - 20 Nisan 2020 arasında toplam 334 COVID-19 hastası (% 68.0 erkek; % 32.0 kadın) kaydedilmiştir. Hastaların ortalama yaşı 34.6 ± 13.9 yıl olup hastaların çoğu (% 34.4) 20-29 yaşlarında. Sağlık çalışanları vakaların % 14,4'ünü oluşturmaktadır. Hastaların % 10,5'i kırsal kesimde, %89,5'i kentte yaşamaktadır. Hastalığın başlangıcında en sık görülen semptomlar öksürük (% 74.9), ateş (% 54.5) ve dispne (% 43.4). Hastaların % 1.8'inde diyabet, % 1.5'inde hipertansiyon, % 0.6'sında kardiyovasküler hastalıklar, % 0.6'sında hiperlipidemi ve % 0.3'ünde immün yetmezlik vardır. Klinik bulguların başlaması ile hastaların hastaneye sevkleri arasındaki ortalama süre 6.5 ± 3.5 gündür. Vaka-ölüm oranı % 2.1 olup, çoğunluğu yaşlılar oluşturmaktadır. Bu çalışma, bölgedeki gelecekteki COVID-19 çalışmaları için bir referans olabilir.

Anahtar Kelimeler: COVID-19, SARS-CoV-2, Herat, Afganistan, Klinik özellikler

Introduction:

In December 2019, a number of pneumonia cases with unknown causes were reported in Wuhan,

1. Associate Professor, Department of Public Health and Infectious Diseases, Faculty of Medicine, Herat University, Herat, Afghanistan ORCID ID: 0000-0002-3335-2235

2. Associate Professor, Department of Infectious Diseases, Herat Regional Hospital – COVID-19, Herat, Afghanistan ORCID ID: 0000-0002-4062-4462

3. Disease Early Warning System, Department of Public Health, Herat, Afghanistan ORCID ID: 0000-0002-8045-6117

4. Regional Health Coordinator, World Health Organization, EMRO, Afghanistan, Herat Sub-office ORCID ID: 0000-0002-1442-4248

5. Associate Professor, Faculty of Medicine, Herat University, Herat, Afghanistan ORCID ID: 0000-0001-6748-778X

6. Assistant Professor Department of Public Health and Infectious Diseases, Faculty of Medicine, Herat University, Herat, Afghanistan E-mail: n.a.shayan@gmail.com ORCID No: 0000-0002-8857-7765

7. Assistant Professor Department of Public Health and Infectious Diseases, Faculty of Medicine, Herat University, Herat, Afghanistan ORCID ID: 0000-0001-6924-7819

the Hubei province of China.(1) On 9 January 2020, The China Centre for Disease Control and Prevention reported that a novel coronavirus (2019-nCoV) was identified as the causative agent of pneumonia cases.(2) On 11 February 2020, the World Health Organization (WHO) named the virus as “severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)” and the diseases it causes as COVID-19.(3) The virus has since rapidly spread to over 200 countries, infected over 2,500,000 people causing an average 6.5% mortality rate; and it is therefore considered a major public health and world economy threat. (4) Current evidence suggests that the primary mode of transmission of SARS-CoV-2 infection is through respiratory droplets, contact routes and probably airborne transmission.(5, 6) The nosocomial transmission of SARS-CoV-2 from hospitalized patients to health-care workers has also been documented.(7)

COVID-19 cases were first reported in Afghanistan in Herat province, in west region of Afghanistan, neighboring Iran.(8) As of April 20th, the Afghanistan Ministry of Public Health documented 334 COVID-19 positive cases in Herat, accounting for 32.6% of all (1,026) cases in Afghanistan.(9)

The purpose of this study was to report analyses of the clinical and epidemiological features of COVID-19 cases that occurred between February 24th and April 20th in Herat province of Afghanistan.

Method:

A descriptive case series study was conducted in Herat. Clinical and epidemiological characteristics were recorded for COVID-19 positive cases, matching the WHO COVID-19 case definition. (10) The Human Ethics Committee of Herat University approved the study protocol (approval #0120). Age, gender, address, presenting signs and symptoms, date of onset of symptoms, date of admission, epidemiological history, history of co-morbidities, length of hospital stay, and health outcome of the infection were recorded.

Patients' nasopharyngeal specimen were collected, stored in optimal conditions and sent to central laboratory for examination. RNA was extracted from clinical samples and underwent a one-step RT-qPCR for viral RNA detection (BGI's RT-PCR diagnostic kits for the detection of SARS-CoV-2, UAE) according to manufacturer's protocol.

Statistical analyses were performed using IBM SPSS Statistics (version 25) software. Descriptive statistics are presented as mean, standard deviation (SD), and ranges for quantitative variables, and as numbers and percentages for categorical variables.

Results:

The first official COVID-19 case in Afghanistan was confirmed on February 24, 2020; in a 35-year old man from Herat with a history of recent travel to Iran. No additional cases were reported for two weeks. By April 20, 2020, the Afghan Ministry of

Public Health recorded 334 patients as laboratory-confirmed SARS-CoV-2 infection in Herat.

Of the 334 patients, 227 (68.0%) were male and 107 (32.0%) were female. Overall mean $\pm$ SD age was 34.6 ± 13.9 years (range 10–85 years). Most patients (34.4%) were 20–29 and least (0.6%) were 80–89 years of age. Healthcare workers accounted for 48 (14.4%) of cases. Thirty-five (10.5%) patients lived in rural areas and 299 (89.5%) lived in the city (Table).

The most common symptoms at onset of illness were cough (74.9%), fever (54.5%) and dyspnea (43.4%); the less frequent symptoms were weakness (2.7%) and diarrhea (0.9%). Six (1.8%) patients had diabetes, 5 (1.5%) had hypertension, 2 (0.6%) had cardiovascular diseases, 2 (0.6%) had hyperlipidemia, 1 (0.3%) was immunocompromised and only one (0.3%) woman was pregnant (Table 1). At admission, 6 (1.8%) patients had history of a known contact with a confirmed COVID-19 case, 69 (20.7%) had history of travel to a COVID-19-affected country, of which 68 (20.4%) were in Iran.

The average time $\pm$ SD between onset of clinical manifestations and patients' referral to hospital was 6.5 ± 3.5 days (range 0–17 days), between patients' admission to hospital and specimen collection was 0.2 ± 0.4 days (range 0–2 days), and between specimen collection to laboratory results was 1.9 ± 2.4 days (range 0–9 days). For people discharged from hospital, the average time $\pm$ SD of hospital stay was 5.9 ± 4.9 days (range 1–18 days). Two hundred and thirty-three (69.8%) cases stayed home in self-quarantine and 101 (30.2%) were hospitalized, of which only one (0.3%) required critical care, admission to ICU and ventilation.

The overall case fatality rate was 2.1% (7/334 patients). The CFR for men was 2.2% (5/227) and for women 1.9% (2/107). The most common symptoms in fatal cases were cough (5; 71.4%), headache (4; 57.1), fever (3; 42.9%) and dyspnea (3; 42.9%). Three (42.9%) fatal cases had history of hypertension and one (14.3%) had diabetes. No

fatal cases had any other underlying disorder. The mean age $\pm$ SD of fatal cases in this study was 60.3 ± 16.5 years (range 40–85 years), which is much higher than the overall mean age of patients in this study ($34.6 \pm 13.9\%$).

Discussion:

There have been many reports regarding the occurrence and rapid spread of COVID-19 in the world. The first case of COVID-19 in Afghanistan was reported on February 24, 2020, after which no additional cases were detected for two weeks. Since March 7, 2020, the number of COVID-19 cases has gradually increased in the country, with Herat province alone accounting for one-third of these cases. By April 20, 31 of 34 provinces of Afghanistan, reported confirmed COVID-19 cases, and the number is increasing every day.

To date, only one study reported COVID-19 situation in Afghanistan.(8) No systematic analysis regarding the epidemiology and clinical symptomatology of COVID-19 has been reported for outbreaks in Herat. Therefore, we undertook a detailed analysis of the current outbreak, to better understand the disease's epidemiology and demographic characteristics, clinical manifestations and case-fatality rate.

Of the 334 patients included in this study, 68.0% were male and 32.0% were female (Table 1). This is in accordance with a COVID-19 study in Wuhan, China; in which 73.0% of patients were male.(12) The higher occurrence of COVID-19 in males is probably due to more frequent exposure of Herat men to COVID-19 modes of transmission, especially social closeness. Over two-thirds (72.7%) of COVID-19 cases in this study were aged between 20 to 49 years. This is probably because this age group is the most active and socially-connected group in Afghanistan and more people were exposed to COVID-19 risk factors. The mean age of COVID-19 cases in this study was 34.65 years, which is much smaller than results of study conducted in Wuhan, China.(12) The apparent reason for this discrepancy is the difference between age structure of Afghanistan's and China's population. According to the National Statistics and Information Authority (NSIA),

of the Islamic Republic of Afghanistan in 2019, over half of Afghan population is under the age of 20.(13)

Table 1. Demographic and clinical characteristics of COVID-19 patients included in this study, Herat province of Afghanistan, April - 2020.

Age categories (years old)	Number	Percentage
10-19	32	9.6
20-29	115	34.4
30-39	84	25.1
40-49	44	13.2
50-59	31	9.3
60-69	22	6.6
70-79	4	1.2
80-89	2	0.6
Total	334	100.0
Gender		
Male	227	68.0
Female	107	32.0
Total	334	100.0
Residence		
City	299	89.52
Rural	35	10.48
Total	334	100.0
Clinical presentation		
Cough	250	74.9
Fever	182	54.5
Dyspnea	145	43.4
Headache	107	32.0
Sore throat	57	17.1
Weakness	9	2.7
Diarrhea	3	0.9
Underlying conditions		
Diabetes	6	1.8
Hypertension	5	1.5
cardiovascular diseases	2	0.6
Hyperlipidemia	2	0.6
Immunodeficiency	1	0.3
Pregnancy	1	0.3
Other	0	0

The most common clinical features of COVID-19 in this study were cough and fever (Table 1). This finding is similar to the results of the study conducted in Wuhan, China; in which, the most common symptoms at onset of illness were reported as fever and cough.(12) The less common symptoms in this study similar to China's study was diarrhea, indicating this symptom rarely occurs in patients suffering from COVID-19. Of significant importance is the occurrence of COVID-19 infection in 48 healthcare workers. Although, nosocomial infection of SARS-CoV-2 has been documented elsewhere,(7) it indicates that adherence to infection prevention and control measures for COVID-19 in healthcare settings is very critical in reducing the nosocomial transmission of this fatal disease.(14, 15)

Unlike Wuhan's study on COVID-19, the occurrence of underlying diseases, was very uncommon. In Wuhan's study 20% of patients had diabetes, 15.0% had hypertension and 15% had cardiovascular diseases; but in this study, the occurrence of these diseases is less than 2.0%. Only one (0.3%) of the cases in this study required ICU admission and ventilation, but in Wuhan study on COVID-19, 32% of patients admitted to the ICU. In this study, seven patients (2.1%) succumbed to infection, which is much less than 15.0% mortality rate reported in Wuhan. (12) This may well be due to a mild-to-moderate presentation of the disease in Herat. The mean age of fatal cases was higher than the overall mean age of cases in this study, indicating that older age may have probably been a factor of mortality.

Conclusion

Our study demonstrates that COVID-19 has become endemic in Herat province affecting young working generation more than the elderly. Herat is also endemic to other fatal viral diseases such as Crimean-Congo hemorrhagic fever, the outbreak of which usually starts in early May. (16) Considering the major health, economic and social consequences COVID-19 and CCHF place on the community, we strongly urge Afghan government and local authorities to unite in enhancing public health and prevention measures,

including surveillance and rapid COVID-19 and CCHF antibody detection tests to more effectively control these infections in the region. This work may serve as a template and reference for future COVID-19 studies in Afghanistan, especially in Herat..

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