COVID-19 in Sudan: Response towards Control and Prevention

Taha Hussein Musa, MSc[1,2], Haitham Mohamed EL Bingawi, FRCP[3], Idriss Hussein Musa, MD[1,2], Layla Ahmed Mohammed, MSc[4], Mohamed Abdelrahman Arbab, PhD[5], Hassan Hussein Musa, PhD[1,4]

[1]Biomedical Research Institute, Darfur College, Nyala, Sudan, [2]School of Medicine, Darfur College, Nyala, Sudan, [3]Department of Medicine, Faculty of Medicine, Al Baha University, KSA, [4]Department of Medical Microbiology, Faculty of Medical Laboratory Sciences, University of Khartoum, Sudan, [5]Department of Surgery, Faculty of Medicine, University of Khartoum, Sudan

INTRODUCTION

The first novel coronavirus case was reported on December 2019, in Wuhan, China (Xu et al., 2020), named by WHO as SARS-CoV-2 and the causing disease as coronavirus disease 2019 (COVID-2019). The genome sequence revealed that the virus is belongs to the beta-coronavirus group, sharing ancestry with bat coronavirus HKU9-1, similar to SARS-coronaviruses.[1] The number of cases has increased within few weeks, and later spread beyond the China border.[2] The epidemic of COVID-19 began in Africa later than other regions globally, perhaps, because of the limited international air traffic, rather than the climate conditions. In Africa, the first cases were reported in early March 2020 in Egypt, followed by Algeria, and Sudan.[3]

Sudan is located in the north-eastern Africa it occupies 1.882.000 million km square, making it third-largest country in Africa, and 16th in the world, with a population of over 40 million people.[4] and Khartoum is the capital which is the main international air travel hub. Khartoum is considered the epi centre of majority of reported and imported COVID-19 cases. In this letter we describe the impact of COVID 19 in Sudan; highlighting the response towards COVID-19 pandemic and the challenges towards possible control and prevention the outbreak.

Outbreak and transmission

The first reported case in Sudan was in 13 March 2020, it was also the first reported death.[5] This has left a negative impact in the Sudanese social media, which assumed that the virus will not spread in the high temperature of Sudan. Since then, the numbers of cases increased rapidly, regardless of measures that were initiated by the federal and state government to combat the outbreak.[6] The current case fatality ratio of COVID-19 infection in Sudan is 0.041, case fatality ratio (CFR) is 0.041, and mortality rate per 100,000 is 0.240. This value is less than that calculated from the worldwide 4.163, but it is similar to the mortality rate reported in Africa 0.218 (Table I). The COVID-19 cases in Sudan are low but the mortality is higher compared with the total African cases. This is because the trend of the transmission of the actual numbers of people infected is unknown, as apparently healthy and asymptomatic peoples are not tested unless they have symptoms of COVID-19. The majority of confirmed COVID-19 cases lived in the Khartoum State. The prevalence is high among males (60%) and people at age 15-29.9 years.[7] COVID-19 infects people of all ages, however, older people and those with underlying medical conditions such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer are at a higher risk. Sudan has a relatively young population with a small fraction of the population who are above 65.[8] This explains the high infection rate among the young age group.

Sudan Response to COVID-19 Timeline

The Federal Ministry of Health (FMH) has a health system that has poor resources, rendering it unable to quickly scale up a response to an epidemic. A Health Emergency Committee (HEC) was established in Sudan as a response to the COVID-19 pandemic. The FMH and others governmental and nongovernmental developed COVID-19 case management protocols for detection, diagnosis and management of suspected cases.[8] On 16 March 2020, the HEC established two COVID-19 isolation centres equipped with limited beds and ICU facilities in the Khartoum State.9 Surveillance measures were started in different entry points in Sudan. In mid-March, the Airport Authority issued a circular prohibiting passengers and nationals from certain countries from entering Sudan, as a protective measure against the disease importation. When passengers arrived from areas where local transmission has been reported were checked: their temperatures were taken, monitored on daily basis, through phone calls, for COVID-19 signs and symptoms.[9] FMH also issued instructions and COVID-19 containment strategies for the general public, clinicians, travellers and for infected patients to follow, so that transmission of the virus to the healthy population can be prevented. On 20 April; Sudan Civil Aviation Authority closed the airports for international and domestic flights until 31 May 2020. Scheduled cargo, humanitarian aid and technical and humanitarian support flights; airlines operating in the oil fields; and evacuation flights for foreign nationals were excluded from this ruling. Khartoum State has been under lockdown since 18 April. Bridges were closed, people were allowed to access neighbourhood shops, bakeries and pharmacies between 6 a.m. and 1 p.m. daily. In addition, the Ministry of Awqaf (Religious Endowments) suspended prayers in mosques and churches in the state during the lockdown period.

Corresponding Author: Dr. Hassan H. Musa
Email: hassanhm@uofk.edu

Table I: Estimated rate from COVID-19 pandemic in Sudan, Africa, and the world wide as at May 20, 2020

	Populations	Confirmed case*	Recovered cases*	Deaths Cases*	Recovery rate	Case fatality ratio (CFR)	Mortality rate per 100,000
Sudan	43,730,724[a]	2,591	247	105	0.095	0.041	0.240
Africa	1,336,874,552[b]	92,313	36,332	2,911	0.394	0.032	0.218
Worldwide	7,785,588,225[c]	4,970,397	1,949,498	324,141	0.392	0.065	4.163

[a] Sudan Population (2020 -05-20). Retrieved 2020-05-20 from https://www.worldometers.info/world-population/sudan-population/
[b] Africa Population (2020-05-20). Retrieved 2020-05-20 from https://www.worldometers.info/world-population/africa-population/B World population estimate. Retrieved 2020-05-20 from https://www.worldometers.info/world-population/
[c] World Population (2020-05-20). Retrieved 2020-05-20 from https://www.worldometers.info/world-population/
*Covid-19 coronavirus pandemic reported cases; Last updated: May 19, 2020, 22:16 GMT.

All gatherings was banned including weddings, celebrations, and Ramadan Iftars. The borders with neighbouring states were closed, with the exception for commercial vehicles carrying strategic commodities such as food, medicines and fuel etc. As the number of cases increased across the country, other states began implementing the same preventative measures as the Khartoum state to curb the spread of COVID-19. In some states in Sudan borders between localities were closed. Movement of strategic commercial goods (food, medicine, fuel etc.) were allowed, and the movement of humanitarian supplies and staff was allowed with permits. In addition, FMH carried out intensive community health awareness using a social media.

The challenges

Sudan is a unique country in terms of culture, natural resources and diversity. However, our health system is not equipped to handle such an outbreak. There is a shortage in healthcare workers due to migration. Sudan has a large extended family living in groups, handling COVID-19 patients at home, and the presentation of disease is another challenge faced by the health system.

Lock down will have high economic cost consequences for Sudan which has been facing severe, urgent, and often unique health challenges for many decades. Almost one-fifth of Sudan's population live below the international poverty line. The outbreak is likely to have an impact on food security and nutrition, and livelihood of millions of people especially for daily workers, small farmers, informal sectors, and those who depend on daily income generations activities, IDPs in the camp, vulnerable people; and people in war affected area are at risk of worsening during the current global pandemic of Covid-19. Ramadan the Muslim fasting month, assist in quarantine of people against COVID-19. However, after this month, outbreak of the fatal virus infection may increase in Sudan. Social distancing and restriction of people movements has been adopted by many countries to reduce the transmission of the disease. The big challenge is to what extent will the community follow this measure, and even if they do, for how long.

Generally, the challenges health care workers in Sudan and Africa faced with this pandemic is the lack of professional health workers, protective equipment, health facilities and diagnostic kits for COVID-19 detection. Therefore, effort should exert by regional authorities and global assistance to prevent the spread of the infection in the developing countries.

The way out

It's perhaps fitting to start our suggestions for the way out by quoting what Sudan minister of health said to Sudanese people during a press conference; he said "*During this pandemic, your health is in your hands. This disease has no treatment other than Panadol, and if the patient suffocated, he will be given oxygen, and if he gets worse, in short, he will die*,".[10]

There is a worldwide uncertainty of how COVID 19 will play out tomorrow; we have no answer to what the best option for us in Sudan. However, while the world is waiting for the development of a vaccine and in the path to recovery, Sudan has many crucial tasks to do. The FMH should continue to share awareness programs through social networking and platforms and follow intense epidemiological surveillance so that any new case of COVID-19 can be noticed rapidly. This can be achieved by identifying the areas of the focus, and trace all the possible victims who may be exposed to the virus or have symptoms, test them and isolate them. This will break the chain of transmission and help to use the test kits to where they are most useful. FMH should continue providing all basic health services at different levels in the healthcare facilities, to prevent the collapse of health system and unwanted death from other diseases. The role of the media in the dissemination of correct information to the public is crucial such as reported cases and disease surveillance to control strategies and any others scenarios for further prevent the transmission of COVID-19 and better understanding the dynamics of disease outbreak in Sudan. The effect of lockdown might be more painful and traumatic to certain vulnerable groups, there should be a way out to help them, through national and international organisations engagement in the management policy. It is important for the authorities to adapt a response and plan policies that are flexible, which address the issues as a consequence of the COVID 19 pandemic.

CONFLICT OF INTEREST

DECLARATION There is no conflict of

interest for this study

FUNDING SOURCE

No fund was received for this study

ETHICAL APPROVAL

The work did not involve the use of human subjects

REFERENCES

1. Xu X, Chen P, Wang J, Feng J, Zhou H, Li X, et al. Evolution of the novel coronavirus from the ongoing Wuhan outbreak and modeling of its spike protein for risk of human transmission. Sci China Life Sci 2020; 63: 457-60.
2. Musa TH, Ahmad T, Khan M, Haroon H, Wei P. Global outbreak of 2019-nCoV, a new challenge? The J Infect Develop Countries 2020; 14(03): 244-5.
3. World Health Organization (WHO) Algeria. Available at https://www.afro.who.int/news/second-covid-19-case-confirmed-africa.accessed accessed on 17 May 2020.
4. Republic of the Sudan, the Council of the Ministers: available at: http://www.sudan.gov.sd/index.php/en/pages/details/7/2 accessed on 17 May 2020.
5. Sudan Reports First Coronavirus Case. The East African. Agence France Presse. 13 March 2020.
6. Sudan, Federal Ministry of Health. Available at http://www.fmoh.gov.sd/. https://www.reuters.com/article/us-health-coronavirus-sudan/sudan-reports-first-coronavirus-case-idUSKBN2101YG accessed on 18 May 2020.
7. Federal Ministry of Health. General directorate of emergency and epidemic control. Situation Report. 1/April/2020 available at http://webcache.googleusercontent.com/search?q=cache:5DzeLoVWFZUJ:fmoh.gov.sd/index.php/files/download/381+&cd=5&hl=en&ct=clnk&gl=sa
8. Sudan Situation Report, OCHA, May 7, 2020.
9. Sudan Flash Update, 16 Mar 2020: Sudan creates two COVID-19 isolation centres in Khartoum State. Originally published 16 Mar 2020.
10. Several Top Figures in Sudan Infected with Coronavirus. Asharq al awsat. 2020, Available at: https://english.aawsat.com//home/article/2266536/ several-top-figures-sudan-infected-coronavirus.