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What If No Specific Treatment or Vaccine Develops, In The Status of COVID-19 Pandemic?

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ABSTRACT

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is leading to a great number of mortalities throughout the world these days. To date, no specific drug or vaccine has been developed so the only available options are preventive strategies like quarantine. In summer, the transmission rate of this virus may reduce, however, it is possible that the disease prevails and becomes endemic.

Keywords: SARS-CoV-2, COVID-19, Pandemic, Quarantine

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the cause of the new coronavirus disease, that was named to COVID-19 by World Health Organization (WHO) is currently a global health emergency. Although the most infected cases experience mild symptoms, but death due to subsequent complications is possible [1]. Over one and a half million people worldwide have been infected until now (April 11th) and more than 200 countries have had confirmed cases. Unfortunately, the pandemic has led to more than 100,000 deaths globally [2].

To date, no specific medication or vaccine has been developed and researchers are trying to find an effective option for reducing the morbidity and mortality [3]. Drug discovery demands great efforts and takes a great deal of time. A precise knowledge about the pathophysiology of disease is essential and then the process is followed by complex procedures of investigating the pharmacokinetics, safety,etc. of the drug [4]. This issue emphasizes the need for other strategies to control the pandemic and also gathers attention to other aspects of the disease. There are some articles indicating that SARS-CoV-2, like severe acute respiratory syndrome (SARS) and influenza, may be affected by meteorological parameters such as humidity and temperature. Low temperature is associated with highermortality rate due to respiratory infections. Therefore, with the beginning of summer lower rate of transmission is expected [5, 6].

A similar situation dates back to 2003 when an epidemic of SARS was reported by WHO, originating from China. Hotspot regions of infection were China, Singapore, Vietnam, and Canada. In less than four months, about 8,000 people in more than 25 countries had been infected with SARS and about 700 people had died. The pandemic was declared as a global alert On March 12, 2003. Although many efforts were made to find an effective drug or vaccine, not much progress was made. WHO strategies to control the disease were limited to isolation of the infected patients, quarantine of suspected individuals, and screening the travelers from endemic areas. These strategies were efficient and SARS was eradicated finally [7, 8].

Another example of these virus genera epidemic is the Middle East Respiratory Syndrome-coronavirus (MERS-CoV) outbreak in 2015. Despite the lack of vaccines or medications, aggressive quarantine strategy was a helpful tool for preventing the spread of infection and controlling the epidemic. The epidemic lasted for 2 months and after several weeks of not reporting any new cases, WHO declared the end of the outbreak. However, the source of the virus, Saudi Arabia, confirmed some new cases for years afterwards. Transmission of MERS-

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CoV is defined as both sporadic zoonotic (camel-to-human) and intra-familial (human-to-human). Although human-to-human rate of transmission is low for this viruse in comparison with SARS-CoV-2, but it is the main route of transmission throughout the community. It can also be concluded that the camel-to-human transmission leads to new sporadic cases in Saudi Arabia and provides a permanent source of the virus [9, 10].

Zika virus was first seen sporadically in Africa and Asia but in 2015 the virus spread from the Pacific to Brazil and in less than a year, quickly expanded throughout the America and then became pandemic. The patients were asymptomatic in 80% of cases, which made the disease highly contagious. No specific drug or vaccine was approved for Zika virus, and patients were treated symptomatically. Since the virus could be transmitted in a variety of routes, preventing the transmission was the main way to deal with it. Preventive measures included combating mosquitoes, caution about unprotected sex, and avoiding unnecessary travel. The disease could also be transmitted from mother to child and had many side effects on the fetus, including microcephaly. Therefore, care of pregnant women was one of the main components of the combat against this virus. The only factor that hindered the fight against the disease was the lack of cooperation from the families involved in disease. After controlling the outbreak, infected cases are still reported [11, 12].

Another example of an infectious disease outbreak with some similar characteristics to COVID-19 was Ebola epidemic, with no certain drug or vaccine at that moment, which was controlled but not eradicated. Ebola was first detected concurrently in Zaire and Sudan and mounted up to 602 cases and 431 deaths totally. To prevent further outbreaks, screening for suspected individuals was performed and confirmed cases were isolated [13]. In 2014-2016, Ebola re-emerged in West Africa with a greater incidence rate. Final operations to control the disease included advancement of diagnosis and treatment facilities, improving society hygiene, isolating patients and travelers and applying strict border surveillance [14].

In conclusion, isolation and quarantine are the key tools in combating against emerging infectious diseases which their specific treatment and vaccine have not been developed yet. This strategy seems to be effective in COVID-19 control and might lead to eradication. However, there is a probability that in some areas the disease may remain endemic for years. Another probability is that as the weather warms up, the transmission rate becomes lower and the infected cases decline. It might be helpful but is not enough alone. In addition, in the lack of vaccine development, other outbreaks might occur. Reducing the transmission rate would buy us time with the development of potential vaccines and medications. A global collaboration from the scientists to the people and governments is needed to decrease the transmission rate and finally overcome the disease.

CONFLICT of INTEREST

There are no conflicts of interest.

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