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Novel SARS-COV-2/COVID-19: an update of prevalence, modes of transmission, clinical manifestations, prevention and management

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Abstract:

A new severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) associated with human to human transmission and extreme human sickness has been as of late announced from the city of Wuhan in China. This epidemic had spread to 210 countries and territories around the world with 6,049,380 confirmed cases, including 367,230 deaths, as of May 30, 2020, so the World Health Organization declared it as a Public Health Emergency of worldwide. It can cause serious respiratory diseases along with enteric, heart and neurological diseases, especially in immunocompromised patients. The reported symptoms include fever, coughing, sore throat, fatigue, headache, diarrhea, hemoptysis. trouble breathing, blue lips or face, persistent pain or pressure in the chest, confusion and excessive drowsiness. Preventive measures such as masks, frequent hand washing, staying home when sick, avoid public contact, and quarantines are being recommended for reducing the transmission. To date, no specific antiviral treatment is proven yet. There is a need to increase the knowledge of health care professionals regarding severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, control, and management. For this, they must know about the prevalence, clinical manifestation, modes of transfer, control measures and management, etc. There must be a special task force that considers raising public awareness in the regions where the virus attacks. They must guide the people with the signs and symptoms of the disease.

Keywords: COVID-19; SARS-CoV-2; Review; Preventive Measures

Introduction

The current outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19 disease was first reported from Wuhan, China, in December 2019. This epidemic had spread to 210 countries and territories around the world with 6,049,380 confirmed cases, including 367,230 deaths, as of May 30, 2020, so the World Health Organization declared it as a Public Health Emergency of worldwide (https://www.worldometers.info/coronavirus/). To combat this disease different scientists have worked on this viral disease which is limited yet. In the literature search, they have consisted of the "respiratory illness", "transmission" and infection control and management. This virus is transmitted from person to person via droplet transmission [1-3]. Therefore, the virus is

spreading easily in overcrowded areas. Most patients experience only mild to moderate symptoms, such as high body temperature in conjunction with some respiratory symptoms such as cough, sore throat, and headache. Some people may have severe symptoms like pneumonia and acute respiratory distress syndrome [4-6]. Also, individuals with underlying complications such as heart disease, chronic lung disease, or diabetes potentially display more severe symptoms [7]. Preventive measures such as masks, frequent hand washing, staying home when sick, avoid public contact, and quarantines are being recommended for reducing the transmission. To date, no specific antiviral treatment is proven effective, hence, infected people initially rely on symptomatic treatments that showed encouraging profile for blocking the new coronavirus in early clinical trials.

Prevalence of COVID-19

Since the onset of the COVID-19 outbreak, this epidemic had spread 210 countries and territories around the world with 6,049,380 confirmed cases, including 367,230 deaths, as of May 30, 2020, so the World Health Organization declared it as a Public Health Emergency of worldwide (https://www.worldometers.info/coronavirus/). The SARS-CoV-2 causes COVID-19 disease was first reported from Wuhan, China, in December 2019. The novel coronavirus' case fatality rate has been estimated at around 3%, in the WHO press conference. However, it noted that, without knowing how many were infected, it was too early to be able to put a percentage on the mortality rate. The fatality rate can change as a virus can mutate, according to epidemiologists. For comparison, the case fatality rate for SARS was 10%, and for MERS 34% [5,6,8].

Modes of transmission

In contexts, all available evidence indicates that the COVID-19 virus is transmitted during close contact through respiratory droplets (such as coughing) and by fomites [5,6,8]. The main danger or source from human to human is direct contact or infectious respiratory droplets. The virus can also spread directly from person to person when a COVID-19 case coughs or exhales producing droplets that reach the nose, mouth or eyes of another person [5,6]. Alternatively, as the droplets are too heavy to be airborne, they land on objects and surfaces surrounding the person. Other people become infected with COVID-19 by touching these contaminated objects or surfaces, then touching their eyes, nose or mouth. According to the currently available evidence, transmission through smaller droplet nuclei (airborne transmission) that propagate through the air at distances longer than 1 meter is limited to aerosol-generating procedures during clinical care of COVID-19 patients [5,6]. This virus can also spread by health centers like ICU and many other health centers.

Clinical manifestation

The reported clinical symptoms include fever, coughing, sore throat, fatigue, headache, diarrhea, hemoptysis. trouble breathing, blue lips or face, persistent pain or pressure in the chest, confusion and excessive drowsiness. People may sick with COVID-19 from 1 to 14 days before developing symptoms [1,9,10]. This virus is most common in old people and patients of cardiovascular disease, diabetes mellitus, hypertension, chronic lung disease, cancer, and chronic kidney disease. Some cases also find as asymptomatic. People between 50 to 59 years are at higher risk of primary infection while people between 30 to 39 years have a higher risk of secondary infection [1,2,19]. It is most common in people who have low immunity.

Preventive Measures

WHO continues to recommend that everyone performs hand hygiene frequently, follows respiratory etiquette recommendations and regularly clean and disinfect surfaces. It also continues to recommend the importance of maintaining physical distances and avoiding people with fever or respiratory symptoms [3,11,18]. Further**,** people should adopt all preventive measures from any type of contact. They should follow those things, which can save them from airborne droplets, aerosol droplets and when someone is necessary to meet with the patient of COVID-19 [3,11]. Moreover, they should take personal preventive equipment like gloves, gowns, masks, and tissues (for sneezing and cough). Public health authorities should aware of local people so that they can take prevention from COVID-19. In the severe condition, respirator (N95, FFP2 or FFP3) is used along with disposal gowns, surgical gloves, goggles or face shields and wearing an isolated dress [3,11,17]. Thus, to resolve this issue virtual workshops should be held worldwide collaborative with WHO. In this workshop, some elements should be included i.e. laboratory diagnosis, epidemiology, quarantines and surveillance system, etc [3,11,21]. The main points that should be highlighted in these workshops would be a diagnosis, research, vaccine development, self quarantines and how to acquired skilled manpower. And finally, I should comment that one health model could be a good control measure [12,20].

Management

In the early era till 1960 CoV was thought to be a simple virus causing flu-like symptoms. In later studies, it was proved that CoV is a more serious and dangerous virus and it causes SARS (2002 to 2003) [1-3, 18]. The outbreak of a very serious condition MERS in Saudi Arabia in 2012 proved it more dangerous [1-3, 17]. To manage the COVID-19 antipyretics and analgesics are directed. Moreover, hydration is maintained and also the respiratory system is supported by mechanical ventilation or extracorporeal membrane oxygenation. In case of bacterial infection along with COVID-19 antibiotics are found beneficial. We may use chloroquine and hydroxychloroquine having synergistic effects, but further studies needed. Also, we have the option of Favipiravir and **Remdesivir which were trialed by China and Japan but extensive studies are required** [13-15,19]. Blood plasma may also considered beneficial but it still needs more supportive evidences [16]. Now many researches are working to produce the vaccine for COVID-19.

Conclusion

COVID-19 is a deadly fatal and is transmitted worldwide. It caused diseases in people on a large scale. The Government and authorities must develop and implement the guidelines to reduce the spread rate of COVID-19 in countries in which it is found. Personal Protective Equipment (PPE) must be used to avoid nosocomial infection (Hospital-acquired infection). It must be used by the health care professionals while handling the patients suffering from COVID-19 to avoid infection. People must have awareness about its signs and symptoms mainly in travelers. They must report to health care centers about the signs and symptoms if they observe. Thus proper measures should be taken to avoid the spread of infection and treat properly.

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