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K Sowmya Sravani

Southern Institute of Medical
Sciences, Guntur, Andhra
Pradesh, India

N Harichandana

Southern Institute of Medical
Sciences, Guntur, Andhra
Pradesh, India

M Suprathika

Southern Institute of Medical
Sciences, Guntur, Andhra
Pradesh, India

SK Inthiyaz

Southern Institute of Medical
Sciences, Guntur, Andhra
Pradesh, India

G Swapna

Southern Institute of Medical
Sciences, Guntur, Andhra
Pradesh, India

V Joy Blessanna

Southern Institute of Medical
Sciences, Guntur, Andhra
Pradesh, India

Corresponding Author:

K Sowmya Sravani

Southern Institute of Medical
Sciences, Guntur, Andhra
Pradesh, India

A review on corona virus (Covid-19)

K Sowmya Sravani, N Harichandana, M Suprathika, SK Inthiyaz, G Swapna and V Joy Blessanna

Abstract

There is a substitution public health crises causing the earth with the emergence and spread of 2019 novel coronavirus (2019-nCoV) or the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus generated in bats and was transmitted to humans through yet unknown intermediary animals in Wuhan, Hubei province, China in December 2019. There are approx. 96,000 reported positive cases of coronavirus disease 2019 (COVID-2019) and 3300 reported deaths thus far (05/03/2020). The disease is speeded by inhalation or contact with infected droplets and thus the period of time ranges from 2 to 14 d. The features are usually fever, cough, pharyngitis, breathlessness, fatigue, malaise among others. The disease is mild in most people; in some (usually the elderly and other people with comorbidities), it's getting to reach pneumonia, acute respiratory distress syndrome (ARDS) and multi organ dysfunction. many folks are asymptomatic. The case death rate is predicted to range from 2 to 3. Diagnosis is by demonstration of the virus in respiratory secretions by some molecular tests. Common laboratory findings are normal/ low leukocyte counts with elevated C-reactive protein (CRP). The computerized tomographic chest scan is usually abnormal even in those with no symptoms or mild disease. Treatment is really supportive; role of antiviral agents is yet to be established. Prevention entails home isolation of suspected cases and other people with mild illnesses and strict infection control measures at hospitals that include contact and droplet precautions. The virus spreads faster than its two ancestors the SARS-CoV and Middle East respiratory syndrome coronavirus (MERS-CoV), but has lower fatality. the worldwide impact of this new epidemic is yet uncertain.

Keywords: Corona virus Covid-19, cough, pharyngitis, breathlessness, fatigue

Introduction

Coronavirus disease 2019 (covid-19) is an communicable disease occurred thanks to severe acute respiratory syndrome coronavirus 2 (sars-cov-2) [1]. The disease was identified for the primary time in December 2019 in Wuhan, the capital of China's Hubei province, and has since expanded globally, leading as ongoing 2019–20 coronavirus pandemic [2, 3]. Common symptoms include fever, cough, and shortness of breath. Other symptoms may include fatigue, muscle pain, diarrhoea, pharyngitis, loss of smell, and abdominal pain [4, 5]. The time from exposure to onset of symptoms is usually around five days, but may range from two to 14 days. 6 While the bulk of cases end in mild symptoms, some reach viral infection and multi-organ failure

Transmission

Maintaining close contact and droplets of infected persons are the main route of transmission in case of SARS-CoV whereas minute chances of transmission also can occur through sweat, stool, urine, and respiratory secretions. Upon entering the virus within the physical body its primary targets are enterocytes and pneumocytes, where thereby establishes a cycle of infection and replication. CoV has other target sites which incorporates epithelial renal tubules, tubular epithelial cells of kidney, immune cells, and cerebral neuronal cells [7, 8].

Target

The sequence of 2019-nCoV is totally known 14 which contains just one PDB (PDB ID:6LU7) which is in complex with N3 (inhibitor) consistent with RCSB database. However, Bat-SL-CoVZC45 and SIRS CoV-ZSc (nucleotide blast, NCBI) have found similarity with 2019-nCoV to an extent of 95% and 88% respectively. this means that the 2019-nCoV has undergone changes w.r.t protein structural and functional levels [9].

Experimental Treatment

No medications are approved to treat the disease by the WHO although some are recommended by individual national medical authorities [10]. Research into potential treatments started in January 2020 [11], and a number of other antiviral drugs are in clinical trials [12, 13]. Although new medications may take until 2021 to develop [14], several of the medications being tested are already approved for other uses or are already in advanced testing [15]. Antiviral medication could also be tried in people with severe disease. 14 The WHO recommended volunteers participate in trials of the effectiveness and safety of potential treatments [16]. The FDA has granted temporary authorization to convalescent plasma as an experimental treatment in cases where the person's life is seriously or immediately threatened. it's not undergone the clinical studies needed to point out it's safe and effective for the disease.

Vaccine

There is no available vaccine, but various agencies are actively developing vaccine candidates. Previous work on SARS-CoV is being utilised because SARS-CoV and SARS-CoV-2 both use the ACE2 receptor to enter human cells.[266] There are three vaccination strategies being investigated. First, researchers aim to create an entire virus vaccine. the utilization of such an epidemic, be it inactive or dead, aims to elicit a prompt immune reaction of the physical body to a replacement infection with COVID-19 [17].

Passive Antibody Therapy

Transferring purified and concentrated antibodies produced by the immune systems of these who have recovered from COVID-19 to people that need them is being investigated as a non-vaccine method of passive immunisation [18]. This strategy was tried for SARS with inconclusive results. Viral neutralisation is that the anticipated mechanism of action by which passive antibody therapy can mediate defence against SARS-CoV-2. Other mechanisms however, like antibody-dependent cellular cytotoxicity and/or phagocytosis, could also be possible. Other sorts of passive antibody therapy, for instance, using manufactured monoclonal antibodies, are in development. Production of convalescent serum, which consists of the liquid portion of the blood from recovered patients and contains antibodies specific to the present virus, might be increased for quicker deployment [19].

Candidates for 2019-Ncov

Approved protease inhibitors including disulfiram, lopinavir and ritonavir are reported to move against SARS and MERS. Disulfiram, an approved drug to treat alcohol dependence, has been reported to inhibit the papain-like protease of MERS and SARS in cell cultures (Supplementary Table 1), but clinical evidence is lacking. Clinical trials (for example, ChiCTR2000029539) are initiated to check HIV protease inhibitors like lopinavir and ritonavir in patients infected with 2019-nCoV. Lopinavir and ritonavir were initially hypothesized to inhibit the 3-chymotrypsin-like protease of SARS and MERS, and seemed to be related to improved clinical outcomes of patients with SARS during a non-randomized open-label trial [20].

Mechanical Ventilation

Most cases of COVID-19 aren't severe enough to need mechanical ventilation (artificial assistance to support

breathing), but a percentage of cases do [21]. Some Canadian doctors recommend the utilization of invasive mechanical ventilation because this system limits the spread of aerosolised transmission vectors [22].

Outlook

The virus can easily spread from one person to another person it is strictly prohibited to visit populated areas. According to WHO, the only possible way to escape the virus is to avoid contact with infected person. It also known that Vaccines are not available in market, it is individual responsibility to take care a prevention is better than cure.

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