

Review Article

Novel Corona Virus: Causes, Clinical Manifestation and Diagnosis

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ABSTRACT

There is a new crisis in the world health threatening the public with spread of Corona Virus. Since at the end of 2019, when Covid-19 emerged in Hunan through market of Wuhan, South China and rapidly spread worldwide, the virus outbreak declared an emergency by World Health Organization (WHO) for public health. In this review we summarize the current clinical characteristics for potential COVID-19 about Diagnosis, Treatments and Prevention of COVID-19. It is very important to caution the readers for clinical characteristics, diagnosis, treatment strategies, and outcomes COVID-19. In whole world the disease caused varying degrees of illness. Patients showing various symptoms usually fever, cough, throat pain, breathlessness, and malaise among others. It is very important to identify the potential cases of COVID-19 as earliest and isolate the suspected people from the confirmed cases to prevent the potential transmission of infection to other.

Keywords: Coronavirus, COVID-19, symptoms, treatment

Origin and History

According to the World Health Organization (WHO), viral diseases continue to emerge and represent a serious issue to public health. In the last twenty years, several viral epidemics such as the severe acute respiratory syndrome have been recorded. The coronavirus belongs to the family of viruses that may cause various symptoms such as fever, breathing difficulty, pneumonia and lung infection. In 1960 corona virus was firstly notified as cold. In 2001, more than 500 patients were identified as Flu-like system in Canada, from these 18 cases were confirmed as infected with corona virus strain by PCR. Various reports published with the proofs of spreading the corona to many countries such as United States America, Hong Kong, Singapore, Thailand, Vietnam and in Taiwan in 2003 because severe acute respiratory syndrome caused by corona and their mortality.

This was the black year for microbiologist. When microbiologist was started focus to understand these problems. After a deep exercise they conclude and understand the pathogenesis of disease and discovered as corona virus. Another study report of Hong Kong was confirmed 50 patients of severe acute respiratory syndrome while 30 of them were confirmed as corona virus infected. In 2012, Saudi Arabian reports were presented several infected patient and deaths. [1–4] COVID-19 was first identified and isolated from pneumonia patient belongs to Wuhan, china. [5–6]

Spreading of Corona

Peoples can get the infection from person to person by close contact who have the symptoms of corona virus includes cough and sneezing. Corona virus spreads mainly by droplets produced as a result of coughing or sneezing. This can happen in two ways: Direct close contact: one can get the infection by being in close contact with Corona patients, especially if they do not cover their face when coughing or sneezing. Indirect contact: the droplets survive on surfaces and clothes for many days. Therefore, touching any such infected surface or cloth and then

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touching one's mouth, nose or eyes can transmit the disease. According to a study published in 2019, A giotensin converting enzyme 2 (ACE.2), a membrane exopeptidase in the receptor used by corona virus in entry to human cells. [7–9].

Characteristics

According to a report published on 24 Jan 2020, corona virus infected patient has many common features such as fever, cough, and fatigue while diarrhea and dyspnea were found to be as uncommon feature. Many of them patient reported bilateral abnormalities. Corona virus was isolated from bronchoalveolar lavage fluid in china in 2020. It is also detected in blood samples. Till now, corona virus was not confirmed in feaces and urine sample of patient. [10–12]

Pathophysiology

CoVs are enveloped, positive-stranded RNA viruses with nucleocapsid. For addressing pathogenetic mechanisms of SARS-CoV-2, its viral structure, and genome must be considerations. In CoVs, the genomic structure is organized in a +ssRNA of approximately 30 kb in length — the largest known RNA viruses — and with a 5'-cap structure and 3'-poly-A tail. Starting from the viral RNA, the synthesis of polyprotein 1a/1ab (pp1a/pp1ab) in the host is realized. The transcription works through the replication-transcription complex (RCT) organized in double-membrane vesicles and via the synthesis of subgenomic RNAs (sgRNAs) sequences. Of note, transcription termination occurs at transcription regulatory sequences, located between the so-called open reading frames (ORFs) that work as templates for the production of subgenomic mRNAs. In the atypical CoV genome, at least six ORFs can be present. Among these, a frameshift between ORF1a and ORF1b guides the production of both pp1a and pp1ab polypeptides that are processed by virally encoded chymotrypsin-like protease (3CLpro) or main protease (Mpro), as well as one or two papain-like proteases for producing 16 non-structural proteins (nsps). Apart from ORF1a and ORF1b, other ORFs encode for structural proteins, including spike, membrane, envelope, and nucleocapsid proteins [13]

Prevention Management and Vaccination

Preventive measures are the current strategy to limit the spread of cases. Preventive strategies are focused on the

isolation of patients and careful infection control, including appropriate measures to be adopted during the diagnosis and the provision of clinical care to an infected patient. For instance, droplet, contact, and airborne precautions should be adopted during specimen collection, and sputum induction should be avoided.

There is nothing to provide complete guidance to prevent from corona virus but WHO issued the following general recommendations for prevention:

- Avoid close contact with subjects suffering from acute respiratory infections.
- Wash your hands frequently, especially after contact with infected people or their environment.
- Avoid unprotected contact with farm or wild animals.
- People with symptoms of acute airway infection should keep their distance, cover coughs or sneezes with disposable tissues or clothes and wash their hands.
- Strengthen, in particular, in emergency medicine departments, the application of strict hygiene measures for the prevention and control of infections.
- Individuals that are immunocompromised should avoid public gatherings.

The most important strategy for the populous to undertake is to frequently wash their hands and use portable hand sanitizer and avoid contact with their face and mouth after interacting with a possibly contaminated environment. [14–15]

There is no specific antiviral treatment recommended for COVID-19, and no vaccine is currently available. Only supportive therapy is the treatment strategy followed by health professionals. Supportive therapy includes administration of antipyretic and analgesic, maintenance of hydration, mechanical ventilation as respiratory support and uses of antibiotic in bacterial infections. Some research studies claimed that ribavirin and interferon alpha have offered synergetic effect in early stage. While other studies reported mycophenolic acid as monotherapy. Still health professionals were not fully satisfied with any therapy so

further clinical research needed. Meanwhile, scientific research is growing to develop a coronavirus vaccine. In recent days, China has announced the first animal tests, and researchers from the University of Queensland in Australia have also announced that, after completing the three-week in vitro study, they are moving on to animal testing. Furthermore, in the U.S., the National Institute for Allergy and Infectious Diseases (NIAID) has announced that a phase 1 trial has begun for a novel coronavirus immunization in Washington state.

Conclusion

Corona virus spreading human to human to transmission by close contact via airborne droplets generating by coughing, sneezing, kissing and smooching. So, avoid these activities with infected partners and family members. So, avoid contact and separate them if observed any infection activities like diarrhea, cold, fever. As per WHO guideline avoid the contact with sick person and also avoid the market or public place as per possible. There is no anti corona virus vaccine to prevent or treatment but some supporting therapy work. Future research needed to fight with corona virus. Till only 'Stay Home Save Lives'.

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