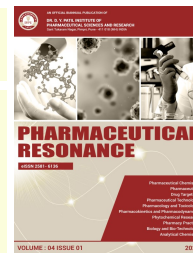




REVIEW ARTICLE

A BRIEF REVIEW ON COVID-19



Bhushan Kumar Banijawade^{*1}, Apurva Dattatray Nawadkar¹, Rupali Prakash Lade¹, Komal Ananda Karande¹

Appasaheb Birnale College of Pharmacy, Sangli, Maharashtra - 416416

ABSTRACT : Corona viruses are spread from china to worldwide. Corona viruses are the group of enveloped viruses with non-segmented, single stranded & positive sense RNA genome. Corona virus (covid-19) is the virus disease caused by SARS-COV-2 (Severe Acute Respiratory Syndrome-Corona Virus-2). The clinical symptoms of covid-19 such as cold, cough, sore throat, difficulty to breathing. Currently there are some specific antibiotic & antiviral drugs used to treat the corona virus. But no any specific medicines available to treat against covid-19. The corona virus is infects peoples of all age groups. But the people who have a good immunity they can fight with corona virus, but the people who has low immunity or who already survive any other disease like diabetes, blood pressure they should have high risk condition. Mostly elder ones & children are having high risk from corona virus. So in this review article we are high lights the epidemiology, etiology, transmission, symptoms, diagnosis, prevention & treatment of covid-19.

Keywords : *Corona virus, COVID-19, SARS-CoV, Pneumonia, Wuhan.*

INTRODUCTION: The recent risk to worldwide health is the current outbreak of the respiratory disease that was recently given the name Corona virus Disease 2019 (Covid-19). Covid-19 was perceived in December 2019. It was swiftly shown to be caused by a novel corona virus that is structurally related to the virus that causes severe acute respiratory syndrome (SARS). As in two previous instances of emergence of corona virus disease in the past 18 years — SARS (2002 and 2003) and Middle East respiratory syndrome (MERS) (2012 to the present) — the Covid-19 outburst has posed dangerous challenges for the public health, research, and medical communities. 1, 2

Internationally, around 21,173,262 confirmed cases of corona virus disease 2019 (COVID-19) caused by the 2019 novel corona virus (SARS-CoV-2) have been reported, including an estimated 759,359 deaths in approximately 213 countries. On March 11, 2020, the World Health Organization declared the COVID-19 outbreak a pandemic. 3, 4

In India around 2506247 cases in mid of August, in

excess of 49000 deaths and recovered cases 1770682. Current focus has been on the development of novel therapeutics, including antiviral and vaccines. Facts suggest that a subgroup of patients with severe COVID-19 might have a cytokine storm syndrome. Current management of COVID-19 is supportive, and respiratory failure from Acute Respiratory Distress Syndrome (ARDS) is the leading cause of mortality. 2 Secondary Haemophagocytic Lymphohistiocytosis (sHLH) is an under-recognized, hyper inflammatory syndrome characterized by a fulminant and fatal hypercytokinaemia with Multi organ failure. 5 Person-to-person transmission has been demonstrated, but, to our knowledge, transmission of the novel corona virus that causes corona virus disease 2019 (COVID-19) from an asymptomatic carrier with normal chest computed tomography (CT) findings has not been reported. 6

EPIDEMIOLOGY:-

As of 3 March 2020, 87,317 cases worldwide have been confirmed by the WHO. As of 3 March 2020, 87,317 cases worldwide have been confirmed by the WHO. Of those confirmed cases, 2,977 patients (3.42 per cent) succumbed to the virus. Most of the reported cases and deaths were in China. Of the total number of cases, China has identified 79,968 (92 per cent) patients. In China, too, the majority of fatalities (2,873 [96.5 percent]) were reported. It is important to note that confirmed cases are diagnosed clinically, and confirmed by the laboratory. A total of 7,169 cases

Bhushan Kumar Banijawade
Appasaheb Birnale College of Pharmacy,
Sangli, Maharashtra - 416 416
Email : bhushanbanijawade@gmail.com
Contact : +91 7776818652

Table 1: Comparison of epidemiological characteristics between MERS-CoV, SARS-CoV-2 and SARS-CoV

Features	MERS-CoV	SARS-CoV	SARS-CoV-2
Host of Virus	Bats are natural hosts, dromedary camels are intermediate hosts and human beings are terminal hosts	Chinese horseshoe bats are natural hosts, masked palm civets are intermediate hosts, and people are terminal hosts	Bats are natural hosts, pangolins are intermediate hosts and people are hosts at terminals
Transmission Mode	Respiratory transmission, zoonotic transmission, nosocomial transmission, limited transmission from human to human, transmission of aerosols	Aerosol droplets from human to human, opportunistic airborne transmission, nosocomial transmission, fecal-oral transmission, zoonotic transmission	Human-to-human by fomites, physical contact, droplets of aerosols, nosocomial transmission, zoonotic transmission
Estimated RO	>1	2-5	2.68
Incubation period	5.2 days	4.6 days	6.4days

have arisen in 59 countries outside of China. Because of the ongoing nature of the pandemic it is expected that the number of cases and countries involved will vary.⁷

ETIOLOGY:

CoVs are a large family of RNA viruses which are found in various species of animals. They are known to cause respiratory, hepatic, nervous, and gastrointestinal diseases in humans. They impart a crown-like appearance under the electron microscope because of the presence of envelope spike glycoproteins. CoVs are members of the families Roniviridae, Arteriviridae and Coronaviridae. It is possible to classify the Coronaviridae family into four genera of alpha-COV, beta-COV, delta-COV and gamma-COV. Beta-COV may also be subdivided into 5 lineages. Gene characterization has helped to identify those bats and rodents are the alpha-COV and beta-COV gene sources. In contrast, avian species are considered to be genetic sources of delta-COV and gamma-COV. CoVs are 5-10 per cent responsible for acute respiratory infections. It is estimated that 2 per cent of the population is considered to be healthy carriers of these viruses. HCoV-OC43, HCoV-HKU1, HCoV-229E and HCoV-NL63 are common human CoVs. Those CoVs clinically present in the immunocompetent with self-limiting respiratory infections and common colds. Older and immunocompromised persons may have lower respiratory tract involvement. Other human CoVs, such as MERS-CoV, SARS-CoV and SARS-CoV-2 have pulmonary and extra-pulmonary characteristics.⁸
⁹ SARS-CoV-2, which is responsible for the pandemic

of COVID-19, is a type of beta-COV. Genomic characterization studies of the new strain have shown that 89 percent of the nucleotide corresponds to CoVZXC21-like bat SARS. An 82% nucleotide is also associated with the human SARS virus. These findings are therefore the basis for the new strain to be called SARS-CoV-2. It has a total genomic length of 29,891 to 29,903 nucleotides. The virus is susceptible to ultraviolet light and heat. SARS-CoV-2 binds to their target cells through angiotensin-converting enzyme 2 (ACE2) expressed in the lungs. In addition, these viruses can be functionally inactivated by using ethanol (60 per cent), ether (75 per cent) and chlorine-containing disinfectants.¹⁰

TRANSMISSION:

Initial cases were probably linked to direct exposure to infected animals (animal-to-human transmission) in the Wuhan, China seafood market. However, clinical cases with a diverse history of exposure have emerged. This helps to further elaborate on the possibility of human-to-human transmission of the virus. Human-to-human transmission is therefore now considered to be the main form of transmission. Individuals who remain asymptomatic may also be able to transmit the virus.

However, symptomatic people are the most common source of infection. Transmission is caused by the spread of respiratory droplets through coughing or sneezing. Data also suggest that close contact between individuals may also result in transmission. This also indicates possible transmission in closed areas due to elevated concentrations of aerosol.¹¹ The basic reproduction number of SARS-CoV-2 is 2.2. This

suggests that the infection can be transmitted by the patient to two other individuals. Current data suggest that the virus has an incubation period of between three and seven days. These findings are based on the original cases. Further studies are therefore needed to address transmission dynamics and incubation times.¹²

SYMPTOMS:

The novel corona virus, like previous corona viruses, causes respiratory disease and the effects have an effect on respiratory health. The key symptoms of COVID-19 symptoms can be very mild to extreme, and include fever, cough, and shortness of breath, according to the Centre for Disease Control and Prevention (CDC). A lot of people get asymptomatic. Symptoms can show up two to fourteen days after exposure. Current evidence suggests the virus can cause mild, flu-like symptoms, as well as more serious disease. Most patients tend to have mild illness, and about 20 percent continue to progress to more serious illnesses, including pneumonia, respiratory failure, and, in some cases death.^{13, 14}

COVID-19 signs and symptoms can occur two to fourteen days after exposure, and may include

- Fever
- Cough
- Shortness of breath or trouble breathing

Other Symptoms includes:

- Fatigue
- Aches
- Runny nose
- Sore throat
- Headache
- Diarrhea
- Vomiting
- Some people have suffered odor or taste loss.^{15,16}

Multiple studies have reported the transmission of COVID-19 from human to human. When individual-to-person spread of MERS-CoV and SARS-CoV occurred, it is assumed that it occurred primarily through respiratory droplets created when an infected person coughs or sneezes, similar to how influenza and other respiratory pathogens spread. Data has shown that it spreads between those in close contact (about 6 feet or 2 metres) from person to person. The virus spreads by respiratory droplets released when someone is infected with coughs, sneezes or talks about the virus.^{17, 18}

DIAGNOSIS:

When you show symptoms of coronavirus (COVID-19) and you've been exposed to the COVID-19 virus,

then you should consult with your doctor. Tell him or her if you've traveled or come from any areas with ongoing community spread of the COVID-19 virus according to CDC and WHO.

This will allow the office to collect information and offer you guidance on next steps. To diagnose you, your doctor may run tests to rule out other common infections. In some cases, your doctor may suggest you self-isolate to prevent the spread of infection. The FDA has also seen unauthorized fraudulent test kits for COVID-19 being sold online. Currently, the only way to be tested for COVID-19 is to talk to your family doctor. Find out more about COVID-19 testing.¹⁹

PREVENTION:

Social distancing is the best practice to avoid spreading of corona virus. Avoid people who are sick or meeting in large groups. Also you stay at home if you are sick. Cover your cough with a tissue or cough into your upper sleeve or elbow. Do not cough into your hands. Wash your hands frequently with soap and water for minimum 20 seconds, especially after going to the bathroom, before eating, and after blowing your nose, coughing, or sneezing. You can also use alcohol containing sanitizers for sanitize your hands and also avoid to touching your mouth, nose, or eyes.²⁰

TREATMENT:

There is currently no any vaccine or treatment for COVID-19 is available. Symptoms of a coronavirus usually go away on their own. If symptoms feel worse than a common cold, contact your doctor. He or she may prescribe pain or fever medication. The FDA is currently advising people to be cautious of websites and stores selling products that claim to prevent, treat or cure COVID-19. Additionally, do not take any form of chloroquine unless it has been prescribed for you by your family doctor and purchased from a legitimate source. As with a cold or the flu, drink fluids and get plenty of rest. If you are having trouble breathing, seek immediate medical care.²⁰ Antibiotics aren't effective against viral infections such as COVID-19. Researchers are testing a variety of possible treatments.

The FDA has granted emergency use authorization for the antiviral drug remdesivir to treat severe COVID-19. The U.S. National Institutes of Health recently recommended the corticosteroid dexamethasone for people with severe COVID-19 who require supplemental oxygen or mechanical ventilation. There is no evidence that ibuprofen or other non-steroidal anti-inflammatory drugs (NSAIDs) need to be avoided.

If you have mild symptoms, your doctor may

recommend that you recover at home. He or she may give you special instructions to monitor your symptoms and to avoid spreading the illness to others. You'll likely be asked to isolate yourself as much as possible from family and pets while you're sick, wear a mask when you're around people and pets, and use a separate bedroom and bathroom.

Your doctor will likely recommend that you stay in home isolation for a period of time except to get medical care. Your doctor will likely follow up with you regularly. Follow guidelines from your doctor and local health department about when you can end home isolation. If you're very ill, you may need to be treated in the hospital.²¹

CONCLUSION :

Covid-19 is a viral disease which is caused due to the SARS-CoV-2 (Severe Acute Respiratory Symptoms – Corona Virus-2). This viral disease shows flu-like symptoms such as high fever, cough-cold, sneezing, sore throat, and difficulty in respiration. There are currently no any medicines or vaccines for covid -19 & hence social distancing is the best practicing to avoid the covid infection. From above article we are concluded the covid -19 virus infection are avoided by the washing our hands frequently with water & soap or hand washes for 20 sec. & sanitize our hands by alcohol containing sanitizers.

So everyone follows the rules & regulations which are given by our government & fight against corona virus.

REFERENCE :

- [1] World Health Organization. Corona virus disease 2019 (COVID-19) situation report–57. Geneva, Switzerland: World Health Organization; 2020. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200317-sitrep-57-covid-19.pdf?sfvrsn=a26922f2_2
- [2] World Health Organization. Corona virus disease 2019 (COVID-19) situation report–51. Geneva, Switzerland: World Health Organization; 2020. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200311-sitrep-51-covid-19.pdf?sfvrsn=1ba62e57_10
- [3] Pneumonia of unknown cause - China: disease outbreak news. Geneva: World Health Organization, January 5, 2020 (<https://www.who.int/csr/don/05-january-2020-pneumonia-of-unknown-cause-china/en/>).
- [4] De Wit E, van Doremalen N, Falzarano D, Munster VJ. SARS and MERS: recent insights into emerging coronaviruses. *Nat Rev Microbiol* 2016; 14: 523-34.
- [5] Karakike E, Giamarellos-Bourboulis EJ. Macrophage activation-like syndrome: a distinct entity leading to early death in sepsis. *Front Immunol* 2019; 10: 55.
- [6] Paules CI, Marston HD, Fauci AS. Corona virus infections—more than just the common cold. *JAMA*. Published online January 23, 2020. doi:10.1001/jama.2020.0757
- [7] Chen Y, Liu Q, Guo D: Emerging coronaviruses: genome structure, replication, and pathogenesis. *J Med Virol*. 2020, 92:418-423. 10.1002/jmv.25681
- [8] Cascella M, Rajnik M, Cuomo A, Dulebohn SC, Napoli RD: Features, Evaluation and Treatment Coronavirus (COVID-19). StatPearls Publishing, Treasure Island, FL; 2020.
- [9] Chan JF, To KK, Tse H, Jin DY, Yuen KY: Interspecies transmission and emergence of novel viruses: lessons from bats and birds. *Trends Microbiol*. 2013, 21:544-555. 10.1016/j.tim.2013.05.005
- [10] Chan JF, Kok KH, Zhu Z, Chu H, To KK, Yuan S, Yuen KY: Genomic characterization of the 2019 novel human-pathogenic coronavirus isolated from a patient with atypical pneumonia after visiting Wuhan. *Emerg Microbes Infect*. 2020,9:221236.10.1080/22221751.2020.1719902
- [11] Ghinai I, McPherson TD, Hunter JC, et al.: First known person-to-person transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in the USA [Epub ahead of print]. *Lancet*. 2020, Accessed: March 21, 2020: 10.1016/S0140-6736(20)30607-3
- [12] Li Q, Guan X, Wu P, et al.: Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia [Epub ahead of print]. *N Engl J Med*. 2020, 10.1056/NEJMoa2001316
- [13] Gu, J., B. Han, and J. Wang, COVID-19: Gastrointestinal Manifestations and Potential Fecal–Oral Transmission. *Gastroenterology*, 2020.
- [14] Kooraki, S., et al., Coronavirus (COVID-19) outbreak: what the department of radiology should know. *Journal of the American college of radiology*, 2020.
- [15] Lai, C.-C., et al., Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and corona virus disease-2019 (COVID-19): the epidemic and the challenges. *International journal of antimicrobial agents*, 2020: p. 105924.