

A REVIEW ON COVID-19

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Abstract : The Severe acute Respiratory Syndrome Coronavirus (SARS-CoV-2) is a novel corona virus this is liable for the pandemic which is still on occurring 2021. This virus is originated in bats and become transmitted to people is yet unknown intermediating animals in Wuhan, Hubei province, China in December 2019. SARS-CoV-2 spreads faster and MERS-CoV however has decrease fatality. This disease spreads by inhalation or touch with the swollen droplets and the incubation period degrees from -fourteen days. Corona virus causes respiratory infection like pneumonia, cold, sneezing, and coughing. We examine the concepts like origin, History, morphology, transmission, prevention, diagnoses, , Here we talk over about the worldwide reaction to the Coronaviruses disease 2019.

Keyword : COVID-19,Transmission,Prevention,Vaccine.

Introduction: The server acute breathing syndrome Corona virus 2 (SARC -CoV-2) is hastily spreading from the region it's far originated this is Wuhan metropolis of Hubei province of China to the relaxation of the arena[1]. World health organization announces a name for the Corona virus i.e.CoVID-19[2]. On may additionally 7 2020 , there had been three,679,499 confirmed instances and 254,199 deaths in 215 international locations[3].Globally as of three:09pm CEST, 2 may also moreover 2021 there have been 151,803,822 confirmed case's of COVID-19 consisting of three,186,538 lack of existence stated who of 22 April 2021, a complete of one,011,457,859 vaccine doses were administrated [4]. Researchers have used various approaches to develop vaccine that protects the people against COVID-19. Different vaccine are now available in various countries[5].

Co stands for Corona ,Vi stands for virus and D stand for disease formally the disease was referred to as 2019 novel corona virus or 2019-ncovi. The COVID-19 virus is new virus linked to the same family of viruses as severe acute respiratory syndrome it some type of cold. On 31 st December 2019 world health organization informed the pneumonia cases in Wuhan city China[6]. According to research it is originated in bat[7], jumps in to the human at one Wuhan's open -air "wet market" They're costumer buy fresh meayand fish[9] . Corona virus is first identified a human corona virus in 1965 it will cause a cold , cough[8] .The virus that cause SARS is emerged in China on 2002 and it spread to 28 other countries 8000 and more people are inflected in July 2003 and 775 people died[9] . The corona virus cause headache , fever and coughing and respiratory problems this was the black year for microbiologist[10]. When they started to Focus to understand these problems after deep research they concluded as corona virus it is positive sense RNA. There are 4 types of corona virus namely HKUI,D29E,NL63,OC43, have been circulation in human and cause respiratory problems[11].

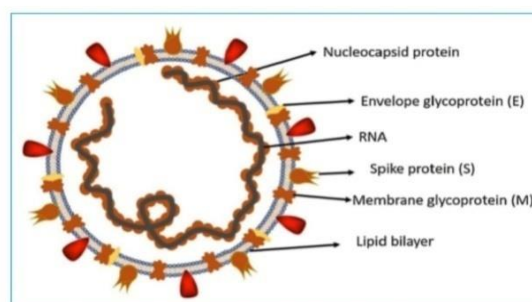


Figure 1. A structure of Respiratory Syndrome (SARS) coronavirus.

Coronaviruses are mostly large, spherical in size and it ranges from 80-120nm in diameter and extreme size ranges from 50-200nm in diameter. These Coronaviruses are structurally enveloped and they belong to the positive strand RNA viruses which are known as genomes of RNA. These being pleomorphic they modify their morphology in response to environmental conditions. The capsular membrane has glycoprotein projection and it covers the nucleus. This structure contains 5-capped and 3-polyadenylated ends, it remains identical to cellular mRNAs [12].

Literature survey:

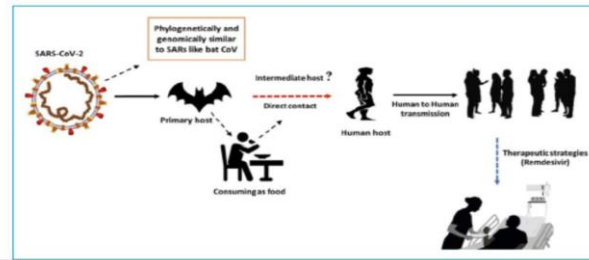


Figure 6. Transmission of COVID-19 to human host.

The mode of transmission of COVID-19 can be in many ways including contact, droplet, airborne, fomite, faecal-oral, blood borne, mother-to-child and animal-to-human. This mainly causes respiratory illness which ranges from mild disease to severe disease and even causes death. The virus was replicated in the ciliated epithelium that caused damage in the cellular parts and infection at the infection site. So, according to the recent study which was published in 2019, Angiotensin-converting enzyme 2(ACE.2) a membrane exopeptidase in the receptor is used by corona virus to give entry to the human cells.

In contact and droplet transmission it is caused due to the close contact with the infected person. The virus spreads from infected person to uninfected person through the infected persons saliva and respiratory secretions or respiratory droplets which are expelled when an infected person coughs sneezes and spits saliva. In these circumstances these droplets which has the virus can reach the mouth, nose or eyes of a susceptible person and can result in infection .The transmission can also occur when we touch the surfaces that the infected person has touched. When we touch the surface we tend to touch our mouth and eyes sometimes this leads to get infected. Latest studies have also suggested that the virus particles also can be founded in infected person’s faecal matter. Animal-to-human transmission is detected recently and they have had mild symptoms. The recent research say that the animals may have caught the virus from close contact with humans who are infected [13, 14].

Prevention: In the period of this virus spreading at this rate we have to take some preventive measures to make ourselves uninfected. When a person is suffering from mild illness he/she is recommended to keep themselves isolated in home, and the person should get sufficient amount of ventilation and good amount of sunlight to kill the virus. The greatest risk of this COVID-19 is it’s transmission to the healthcare workers. Healthcare workers are also has to be taken care of to prevent the transmission from them to other patients. The healthcare workers should be provided with fit tested N95 respirators and protective suits and goggles.



Some of the basic preventive measures to be taken are:

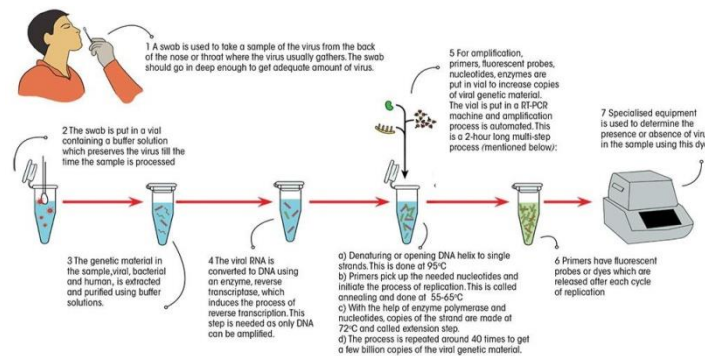
1. One should wear a mask without fail while going out
2. Maintaining social distance at least 6 feet between each person Avoid gatherings and staying indoor
3. Avoid the close contact with the people who are sick
4. Prevent bringing hands in contact with the nose, mouth and eyes
5. Covering your mouth with tissue while coughing or sneezing and later throw the tissue in trash
6. Avoiding touching the objects when we are outdoors
7. Keeping hands clean by washing with soap and or use sanitizers
8. Getting vaccinated as soon as you are eligible[15].

The diagnoses are done to control the spread of the COVID-19 this is based on the clinical assessment and epidemiological characteristics. COVID-19 is a respiratory disorder or respiratory viral infection. The systems are non-specific. This disease can range from non symptoms to severe pneumonia and death. Clinical diseases develop in patients at the further stage

The corresponding of asymptomatic infection is not clear 80% of infection do not result in over clinical signs of disease, 81% of patients develop mild to moderate disease who were confirmed by laboratory COVID-19 test, people above than 65 years having high risk factor, people having respiratory illness can be affected fastly[16].

Few types of tests for COVID-19:

PCR test: This check is also called as a molecular check, by using the lab technique this COVID-19 test detects the genetic material of the virus called polymerase chain reaction (PCR). . By inserting a long nasal swab a fluid sample is collected (naso pharyngeal swab) into your nostril and the fluid sample from the back of your nose or by using a mid-turbinate swab) to get a sample . If analysed onsite the outcomes may be to be had in mins or a few days or longer in vicinity with take a look at processing delays if it if sent to an out of doors lab. PCR tests are very accurate, when this check is accomplished by a health care expert.



Antigen test : The virus which contains certain proteins are detected by this COVID-19 test. A lengthy nasal swab is used to get a fluid pattern. When the instructions are carefully followed positive antigen test result is considered accurate, but there are chances of false- negative result. The doctor may recommend a PCR test to confirm a negative test result [17].

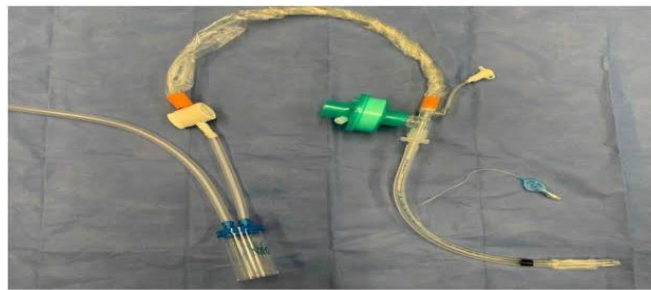


Swab test: special swab is taken from the nose and throat.

Nasal aspirate test: saline solution will be injected into your nose and then sample is taken with light suction .



Tracheal test: In this test a thin tube with torch, is known bronchoscope is inserted into your lungs and sample is collected.



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Blood test: The sample is taken from the vein from the person getting tested

Sputum test: Is a thick mucus accumulated in the lungs comes out with the cough and it is taken as a sample in the cup or special swab from your nose



Rapid diagnostic test: This test is done based on antigen detection and it is widely used in testing the corona virus. The sample is taken from nose, throat and lungs. It is also known as RTD [18].

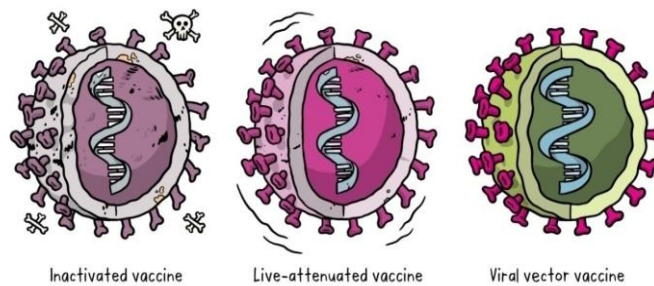


Vaccination – vaccination are a critical new tool in the combat against the Novel Coronavirus 2019. Across the three platforms the seven different vaccine have been rolled out in countries as of 18 February.



Types of vaccine:

The whole-microbe approach

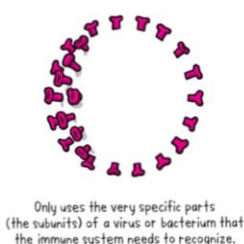


Inactivated vaccine: This vaccine is prepared by taking the disease carrying virus or the bacterium or the one which is very similar to it which is required and it inactivated by using chemicals, heat, or radiation. Special laboratory facilities are required to grow the virus or the bacterium safely and this type of vaccines likely require two or three doses to be administered.

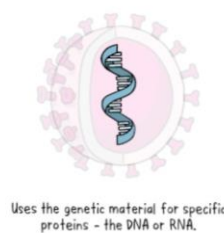
Live-attenuated vaccine: By using the living but the weakened version of the virus or bacterium the one that is very similar to it is used to prepare this type of vaccine. Examples of this type of vaccine are mumps, rubella, and chicken pox and shingles vaccines. But, for the people with compromised immune system are type of vaccines may not be suitable.

Viral vector vaccine : This type of vaccine uses a safe virus to deliver specific subparts called proteins of germ of interest so that it can trigger an immune response without causing disease. The Ebola vaccine is also this type of vaccine.

The subunit approach



The genetic approach (nucleic acid vaccine)



The Subunit approach: The very specific parts (subunits)of a virus or the bacterium is used so that the immune system needs to recognise .The subunit vaccines are the one that are used most on the childhood .

The genetic approach (nucleic acid vaccine): This vaccine is prepared by using either a weakened or dead whole microbe or parts of one, a nuclei acid vaccine just uses a section of genetic material that provides instruction for specific proteins and not the microbe. This is a new way of developing vaccines [18].

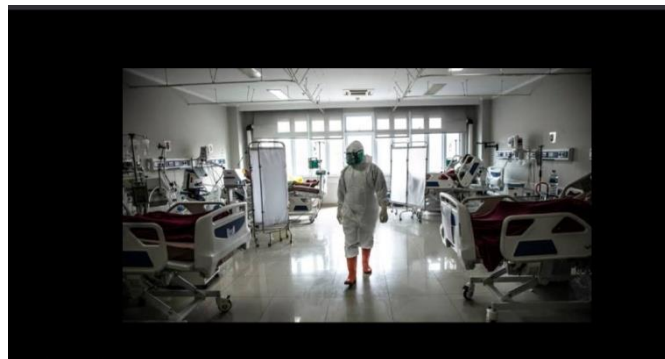
Difficulties Faced by people:

Lack of sanitization:



Sanitation also plays a very crucial role to keep one self away from the virus. As we can see there is a deficiency of forward movement on sanitation which menace the access to the safe drinking water. WHO and UNICEF warns after tracks the access of the drinking water against the Millennium Development Goals . This joint programme gives the announcement of the sanitation and the drinking water. According to this in 2015 update and MDG says among the worldwide 1 out of 3 people or estimated to 2.4 billion are still not getting a proper sanitation [19].

Lack of medical staffs:



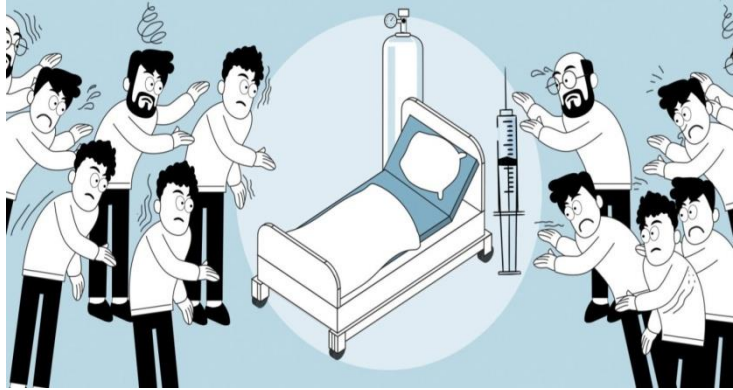
As the cases of CoVID-19 increase day by there is lack of medical staff hence country is facing shortage of medical employees , the chief defence staff general Bipin rawat said pm Narendra Modi said that all medical personnel from armed. Force who have retried in past last tow year recalled to work as Covid facilities within the proximity of their current residence. Decision headquarters and head quarters of Indian Navy and Air force is appointed at hospitals in large numbers to overcome lack of medical staff [20].

Lack of vaccines:



WHO and UNICEF announced that there is a large amount of decrease in the availability of the life-guarding vaccines across the globe. The scarcity is caused due to the carriage and also due to the uptake of immunization service by this pandemic. Now according to the recent data given by the WHO and UNICEF the disruptions threat to reverse the progress to reach for children and adolescents with a waste range of vaccines [21].

Lack of beds:



In almost every region across India, the shortage of beds for COVID patients are being felt, to steam line the process, many states/ cities are running an official website to give out information on COVID bed availability in real-time. The real-time availability of beds in COVID-19 hospitals can be known by using or having official websites which is used by several states /cities. The ICU beds and COVID oxygen actual figures are revealed in the app and website [22].

COVAXIN, India's indigenous COVID-19 vaccine by Bharat Biotech is developing in collaboration with the Indian Council of Virology (NIV). Inactivated vaccine is developed and manufactured in Bharat Biotech BSL-3(Bio-Safety level 3) high containment facility. . Inactivated vaccine can not replicate, , because contained virus are dead therefore it is not capable to affect the another person but it is able to instruct the immune system to develop a defensive reaction against an infection. This 2 – dose vaccination is given 28 days apart.

This is a vaccine with no sub-zero storage, reconstitution requirement is not needed. On July, 2020 the COVAXIN vaccine has received DCGI approval.

The person who is getting vaccinated should mention their medical conditions to the vaccinator that if they are on medication.

It is advisable that not to get vaccinated in the following cases:

If there is any illness and the length of time and it's condition, If the person is having any fever, allergies, a bleeding disorder or a anticoagulant blood, your immune system's defences are low or if you are consuming are a medicine that affects your immune system, if a person is a pregnant, breastfeeding, Have received another COVID-19 vaccine this conditions should be told to the vaccine provider. The person should not get vaccinated if they, had severe allergic reactions to the ingredients present in the vaccine, had a severe allergic reactions after a previous dose of this vaccine and if a person is suffering currently from an acute infection or fever[23].

Conclusion:

The virus challenged the whole world, medical, economic, public vaccinated, health infrastructure, it is clearly an international problem Corona virus is rapid advance pathogen. Due to the rapid increase in the transmission of corona virus all over the country around. We should increase the attention to reduce the rapid increase of corona virus, government should provide the required supplies to overcome this problem, we should look forward to introduce and implement more and more technology to overcome this corona virus we should improve the national laboratory system, establish the rapid response team, we should, and we should convey the importance of vaccination.

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