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A SYSTEMATIC REVIEW ON NOVEL CORONAVIRUS (COVID-19): KEYS TO ORIGIN, SYMPTOMS, AND PRECAUTIONS

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AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

The world is facing new pandemic situation due to corona disease infection and adverse effects on whole world as well as on human daily life. The (COVID-19) i.e. the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) responsible for corona disease. In December 2019, several patients from Wuhan, China were admitted with symptoms of pneumonia. After a few weeks, it spread to the many parts of China and a later to other countries of the world causes corona disease. This virus is supposed to get transferred from bat to human and afterward infected human to healthy human in it's periphery which caused respiratory-related diseases. As this virus is found for very initial time, so no specific medicine is available for such infection; Hence, on the basis of prior symptoms and observations WHO prepared circulated advisory for precautionary measures needed to prevent the contamination and spreading of the disease. Due to most of the countries are affected by COVID-19, it is not only affected humans globally but also affected each and every aspect of life on earth such as science and technology, religion, educational disruption, the lockdown of most of the countries, financial markets, global economy, entertainment industries, unemployment, transportation, global tourism etc.

Keywords: COVID-19; coronavirus; precautions; effects.

1. INTRODUCTION

A mysterious new strain of virus SARS-CoV-2 commonly called corona which leads to death over 4,632 population in China and affected more than thousands of peoples, most of the part of world is infected like America, Italy, France, India, and many other countries. The novel coronavirus belonged to the family of viruse named which is given from its appearance like spike proteins on their shell. It is like the structure of sun so name as the corona which comes from latin word crown [1]. Coronaviruses (CoVs) are a big family of viruses, numerous of which affected the respiratory system of infected persons and causes Severe Acute Respiratory Syndrome [1,2]. SARS-CoV-2 are belonging to the nidovirales order and coronaviridae family which are having four genera namely alpha-, beta-, gamma- and delta-CoV. All CoVs are presently identified to origin disease in humans to belong to the alpha- or the beta-CoV. Many of these CoVs can causes infection in animal's species like bats, cattle, and camels. The virus that is frequently infected from an animal to a human is called a zoonotic virus. When a virus passes from animals to humans for the first time it is called a spillover event [3,4]. According to WHO,

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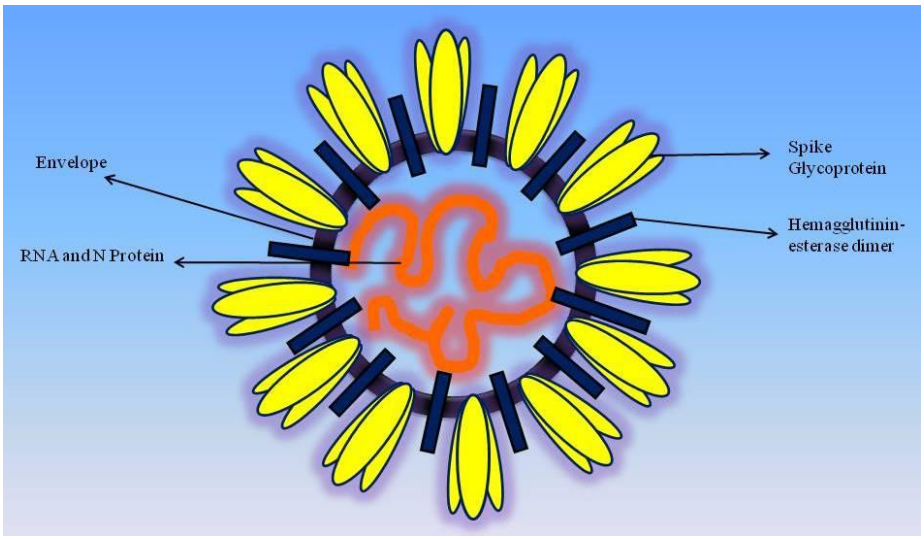

Fig. 1. Structure of coronavirus

information of animals diseased with SARS-CoV-2 have been recognized round the world. Most of these animals converted infected after interaction with people with COVID-19, including owners, caretakers, or others who were in local connection. We don't yet know all of the wildlife that can get sick [5].

1.1 Structure

Coronavirus virus have sphere-shaped to pleomorphic encased constituent part like structure. The covering is investigated with pointing glycoproteins, and a core containing of matrix protein bound within which a single strand of positive-sense RNA is linked with nucleoprotein. The covering glycoproteins are accountable for link to the host cell and also carry the main antigenic epitopes, mostly the epitopes known by neutralizing antibodies [6].

2. NAMING AND ORIGIN OF VIRUS

The official names have been announced on 11 February 2020 by WHO and this pandemic situation facing due to the virous known as COVID-19 the disease it causes corona. The authorized names are severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This identification was preferred for the reason that the virus is genetically related to the coronavirus responsible for the SARS rash of 2003. While related, the two viruses are different [7]. Once a novel virus is discovered, it is essential to realize where it originates from. This is serious to be able to determine and separate the origin and avert additional overviews of the virus into the social residents. It also supports to understand the dynamics of the beginning of the outbreak, which can be used to inform the social health response. Considerate the source of the COVID-19 may also help for the research of medicine for treatment and vaccines for prevention [7,8,4].

To categorize the source of a virus, it is supportive to come across at the genetic study of the virus and notice whether it have earmarked other familiar viruses. This may give some evidences as to its root. Viruses that are genetically very much related tend to derive from a parallel source or similar geographic area. SARS-CoV-2, the virus responsible for corona disease, belongs to a set of genetically-related viruses that includes SARS-CoV and several other CoVs secluded from bat society. MERS-CoV also exist to this group but is fewer closely related [4]. It is further essential to examine along with discuss in extent the early well-known human cases of the disorder for implication as to where they may have become infected. This might assist to recognize earlier possible cases and limited the geological areas and interval so that more definite examination can be achieved to analyze the foundation [9, 4].

Recently, the zoonotic origin of SARS-CoV-2 is unidentified. The early human cases of COVID-19, the coronavirus disease triggered by SARS-CoV-2, were primary stated from Wuhan City, China, in December 2019 and later on it is transfer to the parts of China country. All types of SARS-CoV-2 which are secluded from humans are strictly associated genetically to coronaviruses secluded from bat society, uniquely bats from the genus Rhinolophus. The investigation of the virus genome systems also expresses that SARS-CoV-2 is strongly adapted to human cell receptors, which allows it to infect human cells and simply invade human population [10, 4].

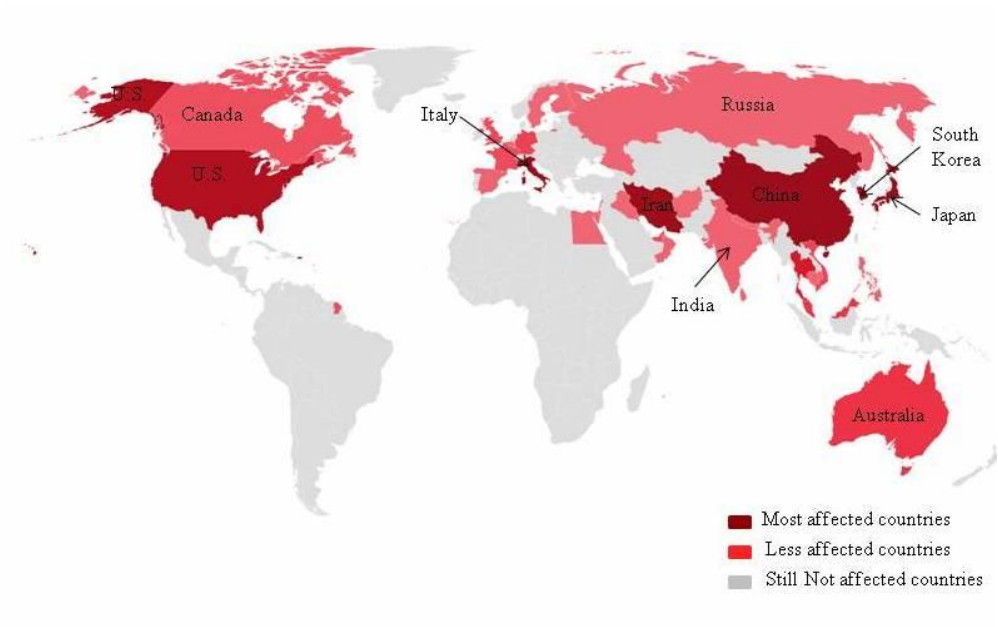

Fig. 2. Coronavirus most affected countries in the world

3. TRANSMITTANCE AND SYMPTOMS OF CORONAVIRUS INFECTIONS

COVID-19 virus is firstly spread from wild life particularly bats to humans. Infected population -to-healthy population by nose, mouth or eyes transmission of COVID-19 has been confirmed. The percentage of spread of coronavirus contagions has not been examine in detail but it is dived into two types that are slow transmission and another is a fast transmission. The COVID-19 is regularly carrying via take in of contaminated droplets, but it may also be spread by the hands to the mucosa of the nose or eyes. The disease has very fast transmitted to certain countries over different countries [2].

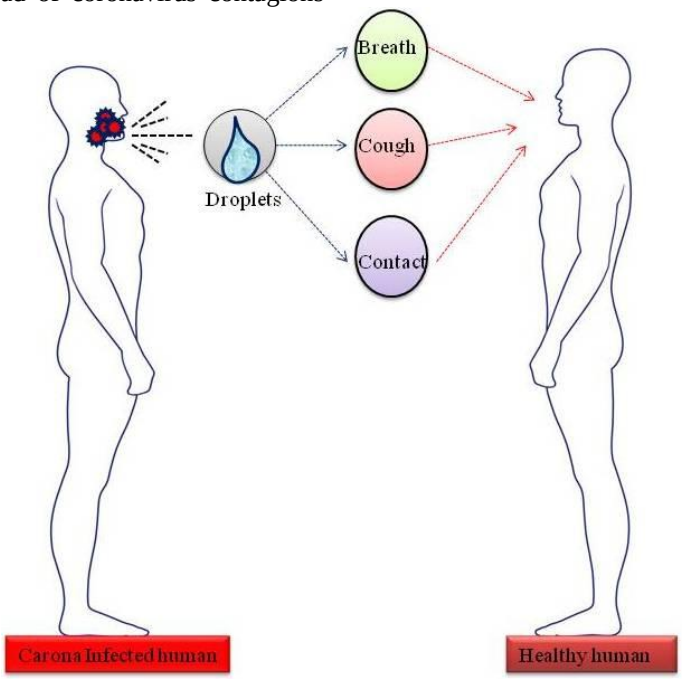

Fig. 3. Coronavirus transmission is of human to human

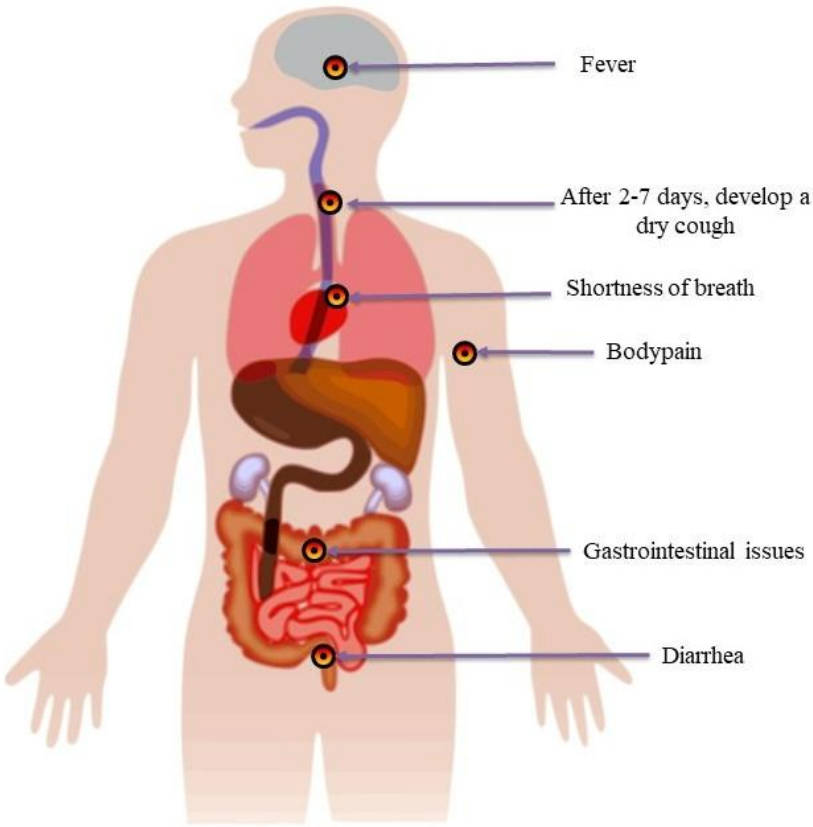

Fig. 4. Coronavirus common symptoms in human

According to the World Health Organization (WHO) report nearby COVID-19 indicators. COVID-19 especially are affecting the respiratory system of human and causes illnesses, an infection which causes minor symptoms such as a sore throat, runny nose, fever, body pain, and cough. It can be more severe for some persons and can lead to pneumonia or breathing difficulties. More rarely, the disease can be fatal. Older citizens and citizens with previous medical history like diabetes and heart disease seem to be more exposed to develop into acutely ill with the virus [11,2].

4. PRECAUTIONS AND PREVENTION

To date, there are no specific drugs suggested to cure the novel coronavirus but with vaccines as shown in table -1 disease may be prevented. These, persons affected with the COVID-19 should take proper care to relieve and treat symptoms, and persons with severe sickness should take improved kind care. A few definite treatments are under examination and will be approved through advance clinical trials. WHO and researcher are now engage in developing drugs to treat with a range of partners [12, 2].

As per the WHO, there is only one way to avoid novel coronavirus infection and that is precautions. As per the guideline of WHO some important precautions are [13]:

- Hygiene measures reduce the rate of transmission.
- Clean hand and face frequently with sanitizer or soap.
- Protect your mouth and nose if you sneeze or cough with a mask.
- Avoid close contact to everybody who has cold or flu-like symptoms.
- Contact to the doctor if you have a cough, or fever, feel that it is problematic to breathe.
- If you go to the market or outside of your home, don't touch animals or anything in the area they stay in.
- Take fresh and healthy food to increase the immune system of the body.
- Avoid going into the human population.

4.1 Vaccination on COVID-19

Different vaccines are available now for prevention of corona disease. Following Table-1 is name of vaccine with their efficiency are given:

Table 1. Different vaccine name, manufacturing company, dose and efficiency [14-18]

Sr. No.	Vaccine name	Name of company	Dose	Efficiency (%)
1.	Moderna	Prizer-Biotech	2	94.2
2.	Astra-Zeneca	Astra-Zeneca and Oxford University	2	70
3.	Sputnik-V	Russian's National Research Center	2	91.4
4.	Sinovach	Sinovach	2	91.25
5.	Novavax	Sinovach	2	90.4
6.	Cansino	Cansino Biologics	1	90.98
7.	Covaxin	Bharat Biotech	2	78-100
8.	Pfizer	BioNTech	2	95
9.	Covishield	Serum Institute of India	2	70-90
10.	Johnson & Johnson	Janssen Pharmaceutical	1	70-85

5. GLOBAL IMPACT OF CORONAVIRUS

The novel COVID-19 virus, which is firstly found in the Chinese city of Wuhan last December, which affected more than 212,407,356 peoples in world and areas all over world, conferring to the WHO. The rate of spreading of virus is very high and it spread to entire world and due to this; it shows the number of side effects in every field [19]. The COVID-19 outbreak has converted one of the major fears to the global economy and financial markets. Meanwhile, fears of the coronavirus impact on the universal economy have rocked marketplaces globally, with stock prices and bond profits plunging. The second most important which is affected educational organizations worldwide, leading to the widespread terminations of universities and schools. Giving to information released by UNESCO on 25 March, school and university terminations due to COVID-19 were applied nationwide in 165 countries [2]. As lockdown announces throughout the country each and every person income decrease due to pandemic situation and each family member suffering and fighting against coronavirus [20].

The COVID-19 affected on religion in different ways such as the closure of many temples, mosques, synagogues, and churches. Most major sporting events were canceled or postponed due to coronavirus. With this in turn of entertainment industries most of the cinemas or TV shows shooting getting stopped, postponed due to lockdown in counties. Most of the release dates of films are postponed which causes financial loss to the industry. One of the most affected areas is science and technology institutes, industries, and research centers who are engaged in the development of Nation like NASA, Indian Space Research Organization (ISRO) and European Space Agency. Due to the lockdown of most of the countries the supply of raw material is stopped, no manpower ultimately affected to development of the nation in all aspects. Coronavirus is affected mostly in every field like agricultural due to lack of workers, unemployment, transportation,

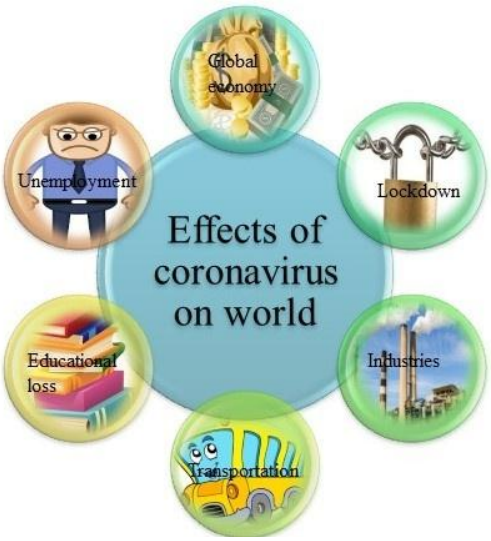

Fig. 5. Effects of coronavirus on world

global tourism, hotel & food sector, and it is also affecting the daily needs of the human [21].

6. CONCLUSION

The corona disease is one of the new disease causes by COVID-19 virus which has high rate of multiplication and infection causes corona disease to the human. It attacks especially on the respiratory system. The COVID-19 is transmitting whole the world at a shocking percentage. This virus is not only affected by to single person but also affects the whole country if precautions are not taken then it is harmful for human community. There is no specific medicine for this particular virus but with proper preventive measures and vaccination the contamination by the virus may control and ultimately population is protected.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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