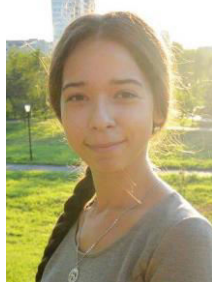


CHAPTER 2

AUTHORS' INFORMATION



Elizaveta Gudkova, 6th year student of the Faculty of Medicine-Psychology and Pharmacy, Prof. V. F. Voino-Yasenetsky Krasnoyarsk State Medical University, Krasnoyarsk, Russia



Karina Gildeeva, 6th year student of the Faculty of Medicine-Psychology and Pharmacy, Prof. V. F. Voino-Yasenetsky Krasnoyarsk State Medical University, Krasnoyarsk, Russia.



Ekaterina Udegova, 6th year student of the Faculty of Medicine-Psychology and Pharmacy, Prof. V. F. Voino-Yasenetsky Krasnoyarsk State Medical University, Krasnoyarsk, Russia.



Dr. Peryanova Olga Vladimirovna, is a senior faculty member and head of the Department of Microbiology, Prof. V.F. Voino-Yasenetsky Krasnoyarsk State Medical University, Krasnoyarsk, Russia.



Dr. Rukosueva Tatyana Vladimirovna, is a senior faculty member at the Department of Microbiology, Prof. V.F. Voino-Yasenetsky Krasnoyarsk State Medical University, Krasnoyarsk, Russia. Currently working on drug resistant pathogens.

CHAPTER-2

HISTORY OF CORONAVIRUS

E. S. Gudkova, E. S. Udegova, K. A. Gildeeva, T. V. Rukosueva*, O. V. Perianova

Department of Microbiology, Prof. V.F. Voino-Yasenetsky Krasnoyarsk State Medical University, Krasnoyarsk, Russia Partizana-Zheleznyaka street, 1, 660022 Siberia, Russian Federation

Corresponding author**T. V. Rukosueva****Email:** ru-ta@inbox.ru**Keywords**

COVID-19

CORONAVIRUS

HISTORY

ABSTRACT

The pandemic COVID-19 has created huge impact across the globe. Perusal of scientific literature reveal the history of corona viruses which have been influencing in past decades, The previous outbreaks were also severe which was combated with different management resources. In case of present COVID-19, which belong to the corona virus family has greatly impacted compared to the previous reported corona viruses. Hence the present chapter deals with the history of corona viruses which becomes one of the important factor to deal with the present and upcoming situations.

I. Introduction

COVID-19 is the new member in the house of coronavirus which started from Wuhan market of China and spreads in all over the globe. USA is having highest number of patients suffering from COVID-19, then Brazil and India is on 3rd number who is suffering from this virus COVID-19. Total number of confirmed patients all over the world is 20,826,701 with mortality reported to be 747,569 updated as on 13th August, 2020. In this chapter, we will highlight and discuss about coronavirus and its history in details. The name of the coronavirus derived from Latin word corona which means crown

or wealth. The name coronavirus is discovered by Almeida and David Tyrrell while studying human coronaviruses. The term was used in Nature journal in 1968 and defined as new member of virus family. Coronavirus is a group of RNA viruses found in birds and mammals and make them sick. If these viruses transferred into human, it makes to suffer from respiratory infections from mild to serious problems. Coronavirus belongs to the family of Ortho coronavirinae. The range of genome size of coronaviruses is approximately 26 to 32 kilobases, one of the largest among RNA viruses. They are rounded with spikes on the surface as revealed by electron micrographs, which create an image similar as solar corona, and since the term Corona is derived. In 1930, coronavirus was discovered when serious respiratory infection was shown and caused infectious bronchitis virus (IBV) in chickens. The infection of new-born chicks was categorized by breathless and slowness and the mortality rate of chicks was 40-90%. The Human coronavirus was first discovered in 1960's and they were quarantined using by two different methods in UK and US. The virus cultivated rhinovirus and many other known viruses related to cold. Tyrrell and By one successfully tested and promoted the novel virus by practicing on human embryonic trachea passing through human organs. COVID-19 is the recent virus found in year 2019 in the family of coronavirus and declared as epidemic. As of now no vaccine is being invented to treat this virus (August,2020) [1-4] and it is challenging to the scientific world in the present scenario.

2. Human infection

Coronavirus is a serious virus infection which is risk factor in human lives. Humans can kill 30 % coronavirus themselves such as MERS-CoV and some virus are relatively harmless like common cold. The Symptoms of coronavirus are fever, cold, throat infection, etc. Coronavirus can also cause pneumonia and bronchitis. In 2003, human coronavirus was discovered and named as SARS-CoV, which can cause severe acute respiratory syndrome that is SARS. It is unique which can cause upper and lower respiratory tract infection [2-4].

Different types of corona viruses infecting humans are

- Human coronavirus OC43
- Human coronavirus HKU1
- Human coronavirus 229E
- Human coronavirus NL63
- Middle East respiratory syndrome-related coronavirus
- Severe acute respiratory syndrome coronavirus
- Severe acute respiratory coronavirus

3. Common cold

There were already many coronaviruses which is already existing before this COVID-19 like HCoV-OC43, hCoV-HKU1, HCoV-229E, HCoV-NL63 in the body humans with the normal symptoms of cold in every day's life. Coronaviruses only cause 15% of common cold while majority are caused by rhinoviruses. Generally, coronaviruses get active more in winter seasons.

4. Severe acute respiratory syndrome (SARS)

It is first found in 2003, and started from Asia and slowly spreads in whole world. World Health Organization (WHO) that time declared it as novel coronavirus which is almost affected by 8000 people worldwide and 10% of people died approx. The official name of this virus is SARS coronavirus that is SARS-CoV [3,5].

5. Middle east respiratory syndrome (MERS)

This virus first found in September 2012, a new type of virus in the family of coronavirus and in 2012 it is also called as Novel Coronavirus and the official name of this virus is Middle east respiratory syndrome that is MERS-CoV. Initially by the world health organization (WHO) it is declared as a virus which is not transmitted through humans but later on France ministry of social affairs and health in May,2013 confirmed it as a case of human to human transmission virus. By the October end in 2013 total number of 124 cases found in Saudi Arabia and 52 deaths found that time. In 2015, it outbreak in Republic of Korea and its found one man travelled to the Middle East to the four hospitals to treat

himself from illness and this then became largest outbreak cases. By December,2019 total number of cases went to 2,468 of MERS-CoV and the mortality rate was 34.5% [5-8].

6. COVID-19

This is the latest virus found in the family of coronavirus. In 2019, first case report in Wuhan, a market of China. World Health Organization give the name of COVID-19 as it traced as a novel trauma of coronavirus. It's now declared as Pandemic. Later it is renamed as SARS-CoV-2 by the International Committee on Taxonomy of Viruses. This virus has 96% similarity with bat coronavirus thus it may be suspected that is came from bat to humans from Wuhan. This virus is human to human transmission virus. The total confirmed cases of COVID-19 are 11,419,529 and approximate death counts touched to 533,780 as of 6th July,2020. This virus shown a tough time to whole nation and everywhere there is Lockdown, restriction in travelling, no vaccine found as such and many more. People who are found ill because of this disease found moderate respiratory problems and not require special treatment for recover. Only who are old and who have some medicals problems like diabetes, cancer, chronic respiratory disease and cardiovascular disease are likely to have serious and special treatment else they will fall into serious illness. To protect yourself and your family from getting affected from this COVID-19 virus then you have to avoid going out as far as possible. The only treatment from COVID-19 is self-protection and taking all preventive measures seriously which is declared by Governments. A number of vaccine development are in process and testing on humans but as such no vaccines is declared positive.

The virus first spread between the close contact of people or a place where positive cases visits. It spread through sneezing or coughing and the droplets then fall on the surface rather than traveling through air. If someone touch that droplet and then touch his own mouth, nose or eyes it hits high and definitely one can suffer too from COVID-19. Later research finds droplet of this virus remain live in the air too for ten minutes. So need to take high precaution every time and everywhere. Usually people touch the contaminated surface and then touch their faces which make them infected. One should take following precautions while moving outside or buy anything wear mask properly, sanitise and wash your hand regularly. When you come home must wash hand

and feet and keep your sleeper outside, properly wash or sanitize the things you bought from market, wash your clothes which you wear during any visit outside and keep social distancing every time. People are not much aware of the fact that how worst the situation is getting and how difficult it is to get protected from this disease especially for the kids and old age people. As Corona reached its third stage which is local transmission it can easily affect the people with a low immune system. Number of cases are increasing as it's in a local transmission stage where the spread is fastest and the virus multiple into twenty times in a second. It takes only few days to spread the cases, so we can guess how bad the situation is. People who have illness like asthma, liver disease, cancer, kidney problems, heart issues and other severe diseases. As it directly attacks the lungs, if you have a weak chest then mind you are at a high risk to get affected by Coronavirus [5-8].

If you want to protect yourself from COVID-19 you need to make your immune strong so you don't affect from such disease. The symptoms are very common like cough, short of breath, fever, fatigue etc. and complications may include pneumonia and respiratory distress. The range of symptoms may occur in five days or range from two to fourteen days. It is the most dangerous among all the coronavirus. It not only hampers the health but whole global social and economic condition also. Because of this we can see global recession. It has cancelled everything from schools to sports, events, political and religious worked, shortage of everything, business loss, global loss and many more. It is found that all age group from new born baby to old age people can suffer from this. Have to take precaution is the only option to save ourselves from this coronavirus COVID-19.

7. Animals infection

Coronavirus is not found in human infection but also recognised in animals too since 1930. The animals like swine, bat, cattle, camels, dogs, horse, birds etc., is also found to be infected by coronavirus too. That's why it is said the latest virus COVID-19 may spread from bat to humans as this virus has similarity of 90% coronavirus found in bats. This virus found in farm animals, Laboratory animals and domestic pets too. In the farm animals, it is found that it effects domesticated birds and IBV that infectious bronchitis virus cause bronchitis infection in them and it affects whole production as it spread in the poultry. It affects both meat and egg production as it targets the respiratory system in

farm animals. In domestic pets like cats and dogs it is found feline coronavirus and canine coronavirus affects the animals by affecting their gastrointestinal disease and cause respiratory disease as well. In laboratory animals are affected by coronaviruses. Mouse hepatitis virus (MHV) roots an epidemic illness which results in high mortality. MHV is the best studies coronavirus before the discovery of SARS-CoV. It was found that this virus affects the individual who comes direct or indirect with the laboratory rats by aerosol [7-9].

Conclusion

Coronavirus is not new, its already existing virus and it's the family of virus. But COVID-19 is most recent, dangerous and serious virus which have no treatment as such. No Vaccine is there to treat COVID-19 as of July,2020. Only precaution and preventive measure is the way to safe from this virus. COVID-19 coronavirus declared as pandemic which is very serious and harmful virus spreading like fire all over the world. Started from Wuhan market of China and spreads everywhere and harmed many lives. People are scared and taking prevention measures. Hospitals and healthcare professionals are in front to fight this virus and save lives. They are our superheroes who are spending their lives to save else live. Media is giving us regular updates on this COVID-19 and it's our duty to understand it and take prevention measures for our safety as well as surroundings. Everyone is aware of this situation and it is very dangerous and have to fight with it. We must follow all safety measure and make sure to make others as well to spread this virus. All instructions and guidelines must be followed to cure yourself and save yourself from this issue. Try to stay at home as much as you and avoid to contacts any outsider. It is the best thing you can easily do and suggest your love ones not to go out for any work until and unless it is not so much important. Make sure that you have all your protection while going out and while buying the things as you have to take all the precautionary measures like washing and sanitizing the things.

REFERENCES

1. RR Nadikattu, and S.M. Mohammad, and P. Whig, "Novel Economical Social Distancing Smart Device for COVID-19 (July 1, 2020)," International Journal of Electrical Engineering and Technology (IJEET), 11 (4),204-217, 2020.

2. A.M. Al-Osail, & M.J. Al-Wazzah, "The history and epidemiology of Middle East respiratory syndrome corona virus," *Multidisciplinary Respiratory Medicine*, 12, 2017.
3. A. Sengupta, & A. Hazra, "From the Aura of Sun to the Devil's Door: A Brief History of Corona".
4. N. Ramesh, A.Siddaiah, &B. Joseph, "Tackling Corona Virus Disease 2019 (COVID 19) in Workplaces," *Indian Journal of Occupational and Environmental Medicine*, 24, 16 – 18,2020
5. I. Chakraborty, &P. Maity, "COVID-19 outbreak: Migration, effects on society, global environment and prevention,"*The Science of the Total Environment*, 728, 138882 – 138882, 2020.
6. C.W.Binns, W.Y.Low, & L.M.Kyung,"The COVID-19 Pandemic: Public Health and Epidemiology," *Asia-Pacific Journal of Public Health*, 2020
7. F.Artese, "COVID-19: The aftermath for orthodontics,"*Dental Press Journal of Orthodontics*, 25, 7 – 8,2020.
8. A.Banerjee,V.Misra, T. Schountz, & M.L. Baker, "Tools to study pathogen-host interactions in bats," *Virus Research*, 248, 5 - 12.
9. T. Mahmud, A.Hafeez,M.Saqib, A.Najab,&M.Ramzan, "SEVERE KLEBSIELLA PNEUMONIA MIMICKING MIDDLE EAST RESPIRATORY SYNDROME IN A DIABETIC MALE RETURNING FROM SAUDI ARABIA," *Pakistan Journal of Chest medicine*, 20, 2015.