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CHAPTER-10

WORLD UNDER THE PANDEMIC SITUATION: NOVEL CORONA VIRUS PARALYZING WORLD'S ACTIVITIES

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ABSTRACT

Since the origin of human species, there have been several diseases that are documented. Of these many diseases are cured themselves without even being noticed and showing any signs and symptoms. Some are eradicated from society by the administration of vaccines. Though few infections like Spanish flu killed several people initially, they are also gradually eliminated. But at present, it is the turn of a new virus named COVID-19. which is originated from Wuhan city from wild life market of China in December 2019. Though it is transmitted from bats to humans in the first case, it got spread to people all around the world and now even making the world upside down. As it is a novel virus and change in its structure, the development of therapeutic agent has become serious concern across scientific communities. By far, WHO and other governing agencies have come up with management strategies like physical distancing, wearing face masks and use of sanitizers etc. In this chapter, the overall brief information is compiled to sum up the ongoing efforts to combat the COVID-19 situation.

1. Introduction

Coronavirus which is named shortly as COVID-19 was known to take its birth in the Wuhan market of China in December 2019. Though it is transmitted from bats to humans in the first case, it got spread to people all around the world [1]. The main mode of transmission is through droplets of saliva or cough. But recently, it came to know that it even spreads through physical contact. Recently, WHO declared it as a pandemic and named it scientifically as SARS - CoV- 2. In India, till now there are more than 21,00,000 cases out of which more than 60% are active cases. This count has already crossed the range of 20,00,000 in the entire world with about 7% death rate. India stands at third place with corona cases in the world with an approximate of 11.1% of world cases. Though the first case was seen in China, at present, the maximum number of cases are reported in America.

2. Structure Of Virus

The corona virus belonging to the family Coronaviridae and order Nidovirales as like other virus is neither living nor dead. Virus particles called virions are proteinaceous structures studded with an envelope of glycoproteins called spikes which attach to host cells. The complete structure of virus was elucidated though the method of cryo electron microscopy which is done under highly reduced temperatures and passing through high energy electrons [2].

3. Indications

The symptoms vary from patient to patient. Though the main symptom being mild to moderate respiratory illness with cough and cold, breathlessness, other common symptoms are fever, tiredness, weakness and in some cases, even loss of speech and movement [3]. The new symptom which has been observed in some patients is anosmia or loss of smell and rarely in about 13% patients hearing loss or deterioration. The continued infection may cause damage to other internal systems. So, with other comorbid conditions like cardiovascular diseases are more prone to the severity and even death[4]. However, even though an individual contacts a patient with a coronavirus, there is still a chance of not being infected if his/her immunity level is high. But, this chance is very less.

Most of the corona patients usually show the symptoms within 10 - 14 days. In the case of carriers, they do not show any symptoms but unknowingly they are responsible for the spread of disease [5].

4. Detection

The most important thing in coronavirus is its detection. In most of the cases, it is misdiagnosed as simple flu or cold with fever. The main test to detect this virus is the swab test which is based on polymerase chain reactions. In this, a cotton swab is passed into the nose to collect samples from the respiratory tract and tested for the presence of a virus [6]. But in some cases, though the patient was positive, the test may show a negative result if the sample is not sufficient to detect. In such cases, saliva tests and antibody tests can be done to detect the presence of antibodies produced against virus particles. Usually, these tests take about 24 hours to show the results. But recently, rapid tests have been developed which give the result within 15 minutes [7].

5. Treatment and cure

The main reason for the lakhs of deaths and arousal of positive cases is the lack of correct information about exact treatment. At present, there is no exact treatment or vaccination available for this pandemic. The only available treatment available was directed towards symptoms. In about 85% of the cases, the symptomatic treatment is showing a positive result. But there is no 100% confirmation as the disease may reoccur and show its effect as observed in many countries. In case of mild to moderate infection, care should be taken to control them by giving fluids, simple rest, etc [8]. NSAIDs and acetaminophen can be given to control normal sore throat, body aches, fever, etc. Antibiotics show no effect as Corona is not bacteria but a virus. Antimalarial drug Hydroxychloroquine is being suggested by many physicians but it showed mixed results. Recently, antiviral drug Remdesivir which is used widely for treating the Ebola virus is gaining attraction as it helped in curing some patients. Plasma therapy using plasma from recovered patients which contain antibodies is still under trial in some patients though it is showing positive result in more patients [9].

6. Vaccination

Synthesis of the vaccine against this coronavirus is becoming difficult because of mainly two reasons. Firstly, the virus is a new one and there is no information regarding it previously. Secondly, the virus has been mutating rapidly which made it difficult for scientists to produce a vaccine. However, many studies and researches are going on in various places. Though the production of a vaccine takes several years, scientists are working to bring it within 12-18 months. Till date, many countries and companies are showing positive results. even some brands have been in their phase III. But, still there is no confirmation that vaccine will be available to public shortly. So, in present conditions prevention of this virus is much better and safe.

7. Preventive measures

It is always better to take some safety measures. This is very much applicable to Corona Virus. The only method to avoid this virus is by following simple preventive measures like:

- Following physical distancing
- Washing hands frequently with soap and water or with alcohol sanitizer
- Avoiding crowdy places
- Using masks and gloves while going outside
- Avoid touching face randomly
- Covering mouth and nose while sneezing or coughing [10]
- Development of novel device to monitor and prevent the infections [11]

Conclusion

Though in all cases, Corona infection is not life-threatening, neglecting it may still lead to severe complications. So preventive measures are the only alternative as there is no exact cure and should be strictly implemented. Researchers are working hard to find out the exact treatment options and studies to produce vaccine are under trials. As there are chances of reoccurrence, negligence after cure may cause great loss and care should be taken.

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