TITLE INFORMATION:

THE STUDY OF THE PANDEMIC DISEASE COVID-19

The intent of the article is identifying the disease, to help the individuals in the learning process and to bring mass awareness. The reader is encouraged to verify the content in several aspects as the information is drawn on the present based clinical trials. The information is focused much on the preparedness of the disaster and response plans. The article contains the information to help you to understand about COVID-19 and the ways to keep ourselves ready for the coming situation. The pathophysiology which I have given describes well how the virus enters inside thehost and how the symptoms start. The case management is taken on the present clinical trials .At last I have shared some of the techniques which can be used for disaster preparedness.

WHAT IS COVID-19?

Corona virus disease is an infectious disease caused by positive sense single stranded RNA virus (+)ssRNA .its symptoms are usually range from mild, moderate to severe and is characterized by flu like symptoms.

The WHO declared the 2019-2020 corona virus outbreak a Public Health Emergency of International Concern on 30 January 2020 and a pandemic on 11 march

2020. The disease was first identified in2019 in WUHAN, the capital of china's Hubei province, and has thus spread globally.[1]

AGENT

It is caused by severe acute respiratory syndrome corona virus 2 (SARS-COV-2). It is single stranded virus, contagious in humans and is the cause of ongoing pandemic in the world. It belongs to the family corona-viridae with order Nidovirales and subfamily Orthocorona-virinae. The size ranges from 23-32 kilobases in length and is the largest genomes in RNA viruses[2]. It can also infect the birds and mammals. Corona virus can cause species barrier and infect humans with severe syndrome. The proteins present on the viruses contribute to virus production and host invasion.

A study investigating the rate of decay of virus found that the viruses are viable up to 18 hrs on copper, 55hrs on cardboard, 72 hrs on stainless steel and 100hrs on plastics.[4]

Incidence

The corona virus is affecting 199 countries and territories around the world. Presently the total cases are 664,290 in which 142,366 had recovered. Total deaths are about 30,890. About 95% cases are in the mild condition and about 5% cases are serious and critical. The highest cases are seen in USA (Active cases:118,314;Recovered cases:3231)[*]

*the present cases were taken on 29/03/2020 (Time:06:25 GMT) and the source is Novel Corona virus (2019-nCOV) situation reports-WHO

PATHOPHYSIOLOGY

Enveloped single stranded positive RNA virus

Spike proteins on the surface of the viral particle play a key role in binding the cell receptor and membrane fusion

Enters the host (through respiratory droplets, contaminated feces, contact etc)

The viruses first stays on the throat , attaching the body receptors breaches the cell membranes and then enters the nucleus of the cell making more copies of the viruses. The symptoms like sore throat, tonsillitis etc occurs at this time.

Viruses move towards the lungs causing inflammation to the mucus membrane and damaging to the air sacs.

The inflammation leads lungs to fill with fluids, pus and dead cells causing pneumonia

The virus can also travel to other parts of body like GI tract, kidney, liver, spleen etc. via blood.

CLINICAL MANIFESTATIONS:

2-14 days represent the current official incubation range of covid-19 .The WHO reported an incubation period for COVID-19 between 2-10 days. China's national health commission (NHC) has estimated the incubation period from 10-14 days.

The cases may be symptomatic or asymptomatic. The common symptoms fever, cough, shortness of breath, body ache (flu-like symptoms).Less common symptoms include running nose, nausea and vomiting, diarrhea and palpitations. In severe cases, the disease may progress to pneumonia, multi-organ failure and even death.

DIAGNOSIS

The diagnosis of the disease can be done by real time reverse transcription polymerase chain reaction. The test is usually done by taking nasopharyngeal swabs or nasal swabs or sputum culture. This test is primarily used to measure the amount of specific RNA present in the virus. Different types of probes are used to identify the virus present in the culture.

Abbott has received emergency use authorization from FDA for the fastest available molecular test of novel corona virus delivering the positive results in less than 5 minutes and the negative results in less than 10 minutes on 28 march 2020.The companies are now ready to supply the test kits to different centers.

If any person have positive result test that means the person has COVID-19 therefore it is likely the person should be kept in isolation to avoid spreading virus to others. The health care provider will determine the best results on the basis of medical history, physical examination and test results.

MANAGEMENT AND PREVENTIVE TECHNIQUES:

The aim of management is to eradicate the virus and to minimize the signs and symptoms in the body. The cases usually range from moderate to severe life threatening condition. The management is also based on the proper diagnosis of the patient.

- Different types of antivirals[4] are used e.g. LOPINAVIR, OSTALAVIR, RITONAVIR etc; antipyretics, antitussiuves and antibiotics.Antimalarial drugs e.g. hydroxyfloroquine are also indicated in severe cases. Corticosteroids should be avoided as it increase the symptoms.

- Oxygen supplementation to maintained at SPO2 >94%.
- Ventilator management as per protocol,
- Monitoring for vitals
- Contact and droplet precautions
- Isolation for positive cases and home quarantine for negative cases
- Fluid management in order to protect from shock
- Health education among the people and awareness though the social media, print media etc
- The patient who are at the risk e.g old age,immunocompromised, anemic patients etc should be home quarantined or isolated
- Symptomatic management prescribed accordingly
- Assurance to the patients and families by clearing the doubts.
- Proper PPE devices for the staff and all health workers in the hospitals like goggles , gowns, face masks, shoe covers, head covers, sanitizers etc.

CASE MANAGENEMENT:

For mild cases STEP 1 PROTOCOL	**For moderate to severe cases** STEP 2 PROTOCOL
• Isolation • Antiviral therapy • Antibiotics • Paracetomal if needed • Vitals to be checked • If the patient is not responding follow step 2 protocol.	• Isolation • Oxygen supplementation and artificial ventilators if needed • Antipyretics, antitussives and antibiotics as prescribed • Hydroxychloroquine for 5 days • Antiviral therapy • Steroids to be avoided

If in step 2 protocol the condition is worsening the patient should send to ICU. The ventillor support should be started, fluid management in order to prevent from shock. Symptomatic management should also be provided as per protocol.

PREVENTIVE MEASURES:

- Supply of PPE kits among the health care providers as they are at the risk of getting the diseases.
- Awareness among the people regarding the disease by print media, social media.
- Home quarantine . maintain social distances
- Practice hygienic techniques
- Be ready for the disaster
- GPHI gave five steps of prevention[5]

    1. Hands wash them often
    2. Elbow cough into it
    3. Face don't touch it
    4. Home stay

- Use of sanitizers and antiseptics.
- Clean and disinfect surfaces
- Do not gather in groups
- Choose the foods that are cooked and can be reheated
- Self quarantine if u have cold.

Disaster Preparedness

In order to manage and organize the resources and the responsibilities for dealing in emergencies to reduce the harmful effects of human life, the volunteer groups are made and are well trained to combat the challenges and to face any coming situation.
For disaster preparedness some of the steps are to followed:

- **Making of volunteer groups among the community areas**:

  These volunteer groups aims at helping the people in the critical situation either by supplying the necessary items like medicines, food etc or by providing health education among the people. The volunteer members should be well trained and registered

- **Training of volunteer members** :
  The volunteer members should be well trained to face any situation in the disaster. The voluntary members should be provided PPE kits for their protection.
- **Formulation of plan of activities:**
  The plan of action should be formulated before the disaster so that everybody volunteer should be ready in the disaster
- **Implementation of the Plan**:
  On the basis of interventions the plan of activities should be implemented accordingly
- **Review of the plan:**
  The action of plan should be reviewed according to the intensity of the disaster.

Refrences:

1. WHO(world health organization) www.who.in
2. The New England journal of medicines www.negm.org
3. Worldmeter for total corona cases worldmeters.info/corona
4. Wikipedia www.wikipedia .com

Responses:

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