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Corona virus- A Narrative Review

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ABSTRACT

Many people never heard of corona virus before .But they're human and animal pathogens. Corona viruses are a family of viruses known for holding strains that cause potentially deadly diseases in mammals and birds. In humans they're typically spread via airborne droplets of fluid produced by infected individuals. A corona virus was first isolated in 1937 from an infectious bronchitis virus in birds that has the flexibleness to noticeably devastate poultry stocks. Human corona viruses (HCoV) were first identified within the 1960s within the noses of patients with the common cold. Two human corona viruses are responsible for an oversized proportion of common colds OC43 and229E

Key Words: Corona virus, Pandemic, Middle East respiratory syndrome (MERS), Sever Acute Respiratory Syndrome (SARS)

1 Reason for why they are called Corona

In 1968 journal nature reported that these viruses are members of unrecognized group so show the virologists suggest to be called corona virus. The characteristic appearance is identified by microscope the word corona virus has different meanings. But the virologist named as corona virus as that they'd the sun in their mind. When the characteristics were compared fringe of projections on the outer body of virus were found some also called them as crown. These viruses contains a genetic material and surrounded by an envelope with protein spikes

What are Corona and also the way do them invaded cell These are the sole stranded RNA viruses said as corona virus which measure about 120 nanometres in diameter, these viruses are highly diverse as they're prone to mutation and recombination.[2] These are the family viruses which cause illness like respiratory diseases for gastrointestinal diseases and respiratory diseases range from the disease to more severe disease like geographic arearespiratory syndrome corona virus and .SARS corona virus [3]. Thus, corona viruscould also be a replacement strain that has not been identified in humans previously. When the scientists determined what exactly it had been, they termed it as corona virus(as within the cases of covid-19 the virus causing SARS COV) These viruses are zoonotic4 it means transmitted from animals to humans that is the MERS COV transmitted from dromedary camel to humans and SARS from live cats' humans [4] corona virus mainly effects mammals' birds and reptiles

2 Incubation

Ranges from 2 days to 14 days as symptoms appear in as few days after exposure [5] the research in China indicates that SARS-COV 2 is additionally infectious during its incubation period [6]

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3 Source of corona virus

It's currently unclear about the origin. it's understood to you've got originated during a market in Wuhan and subsequently spread from animal food to human. Some researchers claim that, it is a cross species transmission between Snakes and human, however should be contested [7] [8]

Some researchers reveal it's originated from bats. the primary corona virus to infect humans were called 229E and OC 43. In humans, it commonly cause cold and 10% to 30% of reports of upper tract infection in adults[9] these also cause and enteric and neurological disease[10]

4 Varieties of corona virus

Corona virus is that the name given the family of viruses with two subfamilies Leto virinae and Corona variance. The latter has four genera, Alpha corona virus, Beta corona virus, Gamma corona virus, and Delta corona virus; these include seven corona viruses which can infect humans

Genus	Varieties causing human disease
Alpha corona virus	Human corona virus 229E(HCoV-229E)
Beta corona virus	Human corona virus HKU1 Human corona virus NL63 Human corona virus OC43 MERS related Corona virus SARS Corona virus SARS Coronavirus-2

https://www.cebm.net/wp-content/uploads/2020/03/JA7.png

5 Corona virus testing

This can be detected by PCR(Polymer chain reaction) also quantitative polymerase chain reaction, sometimes real time PCR or reverse transcriptase polymerase chain reaction that is RT PCR .In this test PCR through reverse transcriptase the virus RNA is converted to its

complementary DNA, where specific regions of the DNA marked by the primers and then amplified which is done through the synthesizing new DNA strands from deoxonucleoside triphosphate using DNA polymerase RT PCR {Reverse transcriptase polymerase chain reaction)

1. 1.A primer is attached to the three Prime end of a single strand of RNA
2. Stepwise deoxynucleoside triphosphate are added
3. 3.This creating a DNA copy of viral RNA
4. 4.Further the DNA which single-stranded is separated
5. By preparing standard complementary DNA(c DNA) by using the synthesize primers and DNA polymerase new copies are synthesized

6 Clinical Presentations/ Sign And Symptoms

Typically corona virus is present with respiratory symptoms many infected may show no symptoms some symptoms to mild to moderate. but some may similar to the seasonal flu [11]

1. Symptoms include
2. Fever
3. cough
4. respiratory symptoms shortness of breath breathing difficulty
5. Fatigue
6. Sore throat

Few may present with more severe symptoms and need hospitalization due to pneumonia sepsis and septic shock [12][13] some emergency signs where we need medical aid[14]

1. Difficulty in breathing or shortness of breath
2. Pressure or persistence pain in chest
3. Pallor of lips or face

7 High Risk People

It affects all the ages some evidence /research suggest that older people over 70 years of age and people with serious chronic illnesses like Diabetes mellitus, Cardiovascular diseases, chronic respiratory diseases, cancer, hypertension, chronic liver disease are at a risk of getting infected [15]

To protect and prevent these groups World Health Organization have advice [15]

1. Keep one meter of distance while greeting the visitors at home you can wave or bow
2. Visitors at the home to be requested to wash their hands if they are living at home
3. Clean and disinfectant surfaces in the home on regular basis
4. If someone who is not feeling well especially with possible covid-19 symptoms limit for the shares of spaces should be done
5. If we show any signs and symptoms of covid-19 illness contact the Healthcare provider by telephone before visiting the Healthcare facility
6. Keep the preparation of action plan for the outbreak of covid-19 in the community where we live
7. All these practices should be followed even when we are at public places
8. Always get the updated information from the reliable sources only

8 Transmission of covid-19/ how is a virus expelled from the body

there are still emerging evidences but current information indicates the human to human transmission as the routes are also unclear, at present but some evidences for the corona virus family indicates that the disease may spread largely through droplets and direct or indirect contact with infected secretions [16] the incubation is understood to be e between 2 to 14 days [15]

When infected person sneezes or coughs through the droplets, the virus enters the atmosphere and droplets of virus laden onto people and surfaces where they can remain infectious for several hours to several days when people come in contact they harbour the virus and with that infected hand if they touch eyes, nose and mouth the entry of viruses into the body.

9 Preventing the transmission

The World Health Organization suggest some basic preventive measures to shield against this new corona virus [17] [18]

1. Stay up to date with the latest information on the COVID-19 outbreak through WHO updates or your local and national public health authority.
2. Perform hand hygiene frequently with an alcohol-based hand rub if your hands aren't visibly dirty or with soap and water if hands are dirty.
3. Avoid touching your eyes, nose and mouth.
4. Practice respiratory hygiene by coughing or sneezing into a bent elbow or tissue so immediately removing the tissue.
5. Wear a medical mask if you've respiratory symptoms and performing hand hygiene after removing the mask.
6. Maintain social distancing (approximately 2 meters) from individuals with respiratory symptoms.
7. If you have got a fever, cough and difficulty breathing seek medical aid.

10 Differential diagnosis other corona virus

Differential diagnosis should include the possibility of a wide range of common respiratory disorders such as:

- Other Corona viruses (SARS, MERS)
- Adenovirus
- Influenza
- Human metapneumovirus (HmPV)
- Para influenza
- Respiratory syncytial virus (RSV)
- Rhinovirus (common cold)
- Bacterial pneumonia, mycoplasma pneumonia (MPP) and chlamydia pneumonia [19].

Differentiation should also be made from lung disease caused by other diseases [20] A CT scan has great value in early screening and differential diagnosis for COVID-19 [21]

11 Management or interventions

Management or interventions
In the case of mild to moderate symptoms the subsequent considerations should be taken into account:

1. **Early identification** - Clinicians, especially physiotherapists, are most often in direct contact with their patients, which might make them infected or infected by others. It's therefore important for physiotherapists and other health professionals to remember of the condition of COVID-19, the thanks to identify it and therefore the thanks to stop it.

2. **Strategies for infection prevention and control (IPC)** - Suspect, probable and confirmed cases should be educated on IPC strategies to prevent transmission of the disease and health management strategies for quarantine.
For hospitalized patients the WHO highlights several considerations [13]

1. **Recognizing and sorting patients with severe acute disease** - Early recognition of suspected patients allows for timely initiation of IPC. Early identification of those with severe manifestations allows for immediate, optimized supportive care treatments and safe, rapid admission (or referral) to themedical care unit keep with institutional or national protocols. For those with mild illness, hospitalization might notbe required unless there is a priority for rapid deterioration. All patients discharged home should be instructed to return to the hospital if they develop any worsening of illness.

2. Strategies for infection prevention and control (IPC) – IPC could be a critical and integral an element of the clinical management of patients and should be initiated at the purposeof entry of the patient to the hospital. Standard precautionsshould be routinely applied in all areas of health care facilities. Standard precautions include hand hygiene; use of PPE to avoid direct contact with patients' blood, body fluids, secretions (including respiratory secretions) and non-intact skin. Standard precautions also include prevention of needle-stick or sharps injury; safe waste management; cleaning and disinfection of equipment; and cleaning of the environment.

3. Early supportive therapy and monitoring - Give supplemental oxygen therapy immediately to patients with severe acute disease (SARI) and respiratory distress, hypoxemia, or shock. Use conservative fluid management in patients with SARI when there is no evidence of shock. Closely monitor patients with SARI for signs of clinical deterioration, like rapidly progressive respiratory failure and sepsis, and apply supportive care interventions immediately. Understand the patient's co-morbid condition(s) to tailor the management of critical illness and appreciate the prognosis. Communicate early with the patient and family.

4. Collection of specimens for laboratory diagnosis - Collect blood cultures for bacteria that cause pneumonia and sepsis, ideally before antimicrobial therapy. Collect specimens from both the upper tract (nasopharyngeal and or pharyngeal) and lower tract.

5. Management of respiratory failure and ARDS -Recognise severe hypoxemic respiratory failure when a patient with respiratory distress is failing standard oxygen therapy. Within the case of respiratory failure, intubation and protective mechanical ventilation could even be necessary [32]. Non-invasive techniques is used in non-severe forms, however, if the scenario doesn't improve or even worsen within a quick period of some time (1–2 hours) then mechanical ventilation must be preferred[22].

6. Management of septic shock–Hemodynamic support is vital for managing septic shock [32].

7. Prevention of complications - Implement the subsequent interventions to prevent complications associated with a critical illness such as:

- Reduce days of invasive mechanical intervention
- Reduce the danger of ventilator-associated pneumonia
- Reduce the possibility of venous thromboembolism
- Reduce the prospect of pressure ulcers
- Reduce the incidence of ICU related weakness

8. Treatment interventions - there is not any current evidence from RCTs to recommend any specific antigen CoV treatment for patients with suspected or confirmed COVID-2019 infection.

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