



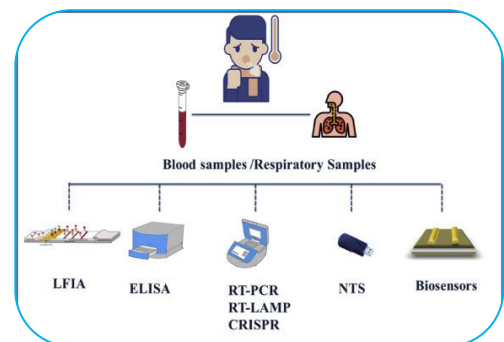
“DIAGNOSTIC STUDIES ON CORONA VIRUS AND THEIR PREVENTION”

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ABSTRACT:

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer are more likely to develop serious illness. Anyone can get sick with COVID-19 and become seriously ill or die at any age.



KEYWORDS: Phylogenetics , corona virus and pandemic.

INTRODUCTION

The first human cases of COVID-19, the disease caused by the novel coronavirus causing COVID-19, subsequently named SARS-CoV-2 were first reported by officials in Wuhan City, China, in December 2019. Retrospective investigations by Chinese authorities have identified human cases with onset of symptoms in early December 2019. While some of the earliest known cases had a link to a wholesale food market in Wuhan, some did not. Many of the initial patients were either stall owners, market employees, or regular visitors to this market. Environmental samples taken from this market in December 2019 tested positive for SARS-CoV-2, further suggesting that the market in Wuhan City was the source of this outbreak or played a role in the initial amplification of the outbreak. The market was closed on 1 January 2020. SARS-CoV-2 was identified in early January and its genetic sequence shared publicly on 11-12 January. The full genetic sequence of SARS-CoV-2 from the early human cases and the sequences of many other virus isolated from human cases from China and all over the world since then show that SARS-CoV-2 has an ecological origin in bat populations. All available evidence to date suggests that the virus has a natural animal origin and is not a manipulated or constructed virus. Many researchers have been able to look at the genomic features of SARS-CoV-2 and have found that evidence does not support that SARS-CoV-2 is a laboratory construct. If it were a constructed virus, its genomic sequence would show a mix of known elements. This is not the case. Another coronavirus, SARS-CoV-1, the cause of the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003, was also closely related to other coronaviruses isolated from bats. These close genetic relations of SARS-CoV-1, SARS-CoV-2 and other coronaviruses, suggest that they all have their ecological origin in bat populations. Many of these coronaviruses can also infect several animal species.

All available evidence for COVID-19 suggests that SARS-CoV-2 has a zoonotic source. This intermediate animal host or zoonotic source could be a domestic animal, a wild animal, or a

domesticated wild animal and, as of yet, has not been identified. All the published genetic sequences of SARS-CoV-2 isolated from human cases are very similar. This suggests that the start of the outbreak resulted from a single point introduction in the human population around the time that the virus was first reported in humans in Wuhan, China in December 2019.

DEFINITION:

A corona virus is a kind of common virus that causes an infection in your nose, sinuses, or upper throat.

Causes of COVID-19:

The infection that causes COVID-19 spreads effectively among individuals. Information has shown that the COVID-19 infection spreads fundamentally from one individual to another among those in close contact (inside around 6 feet, or 2 meters). The infection spreads by respiratory beads delivered when somebody with the infection hacks, sniffles, inhales, sings or talks. These beads can be breathed in or land in the mouth, nose or eyes of an individual close by.

Symptoms of COVID-19:

The main symptoms include:

- Fever
- Coughing
- Shortness of breath
- Trouble breathing
- Fatigue
- Chills, sometimes with shaking
- Body aches
- Headache
- Sore throat
- Congestion/runny nose
- Loss of smell or taste
- Nausea
- Diarrhea

The virus can lead to pneumonia, respiratory failure, heart problems, liver problems, septic shock, and death. Many COVID-19 complications may be caused by a condition known as cytokine release syndrome or a cytokine storm. This is when an infection triggers your immune system to flood your bloodstream with inflammatory proteins called cytokines. They can kill tissue and damage your organs. In some cases, lung transplants have been needed.

Comparative study of other Flu:

Cold vs. Flu vs. Allergies vs. COVID-19				
Symptoms	Cold	Flu	Allergies	COVID-19 (can range from moderate to severe)
Fever	Rare	High (100-102 F), Can last 3-4 days	Never	Common
Headache	Rare	Intense	Uncommon	Can be present
General aches, pains	Slight	Usual, often severe	Never	Can be present
Tiredness	Mild	Intense, starts early, c	Sometimes	Common
Longhaul exhaustion	Never	Usual gone in 2-3 weeks	Never	Can be present
Stuffy/runny nose	Common	Sometimes	Common	Has been reported
Sneezing	Usual	Sometimes	Usual	Has been reported
Sore throat	Common	Common	Sometimes	Has been reported

Cough	Mild to moderate	Common, can become severe	Sometimes	Common
Loss of smell and taste	Sometimes	Sometimes	Never	Has been reported
Rash	Rare	Rare	Can Happen	Can Happen
Pink Eye	Can Happen	Can Happen	Can Happen	Can Happen
Diarrhea	Never	Sometimes in children	Never	Has been reported
Shortness of Breath	Rare	Rare	Rare, except for those with allergic asthma	In more serious infections
Chest Pain	Rare	In more serious infections	Rare	In more serious infections

Diagnosis:

1. Travel history to endemic countries like (China, Iran & Italy)
2. CBC (leukopenia, seen in 30% to 45% of patients, and lymphocytopenia, seen in 85% of the patients)
3. Chest X-Ray (cheaper & easier with 60% sensitivity)
4. PCR (30%-70% sensitivity)
5. Chest CT Scan (95% sensitivity, low specificity)
6. IgM/IgG combo test for COVID-19
7. Chest X-Ray vs Chest CT scan:
8. Chest CT Scan findings:
9. IgM/IgG combo test
10. D. Dimer/ CRP

Specimen Collection:

1. Combined nasopharyngeal / or pharyngeal swab
2. If positive repeat every 3 days till negative
3. If negative repeat second test after 24 hours
4. If 2 consecutive negative isolation can be discontinued
5. Lower respiratory specimen is preferred when applicable
6. Airborne and contact isolation is recommended for further information contact your infection control practitioner.

Treatment:

1.Mild cases: Supportive treatments (Antihistamine & Analgesics)

2.Moderate cases:

- a. Oseltamivir (150 mg BD for 5 days)
- b. Hydroxychloroquine, Chloroquine (500 mg BD for 14 days) or Ribavirin (for 5 days)

3.Severe cases:

- a. Oseltamivir (150 mg BD for 5 days)
- b. Kaletra (Lopinavir/Ritonavir) (for 5 days)
- c. Hydroxychloroquine, Chloroquine (500 mg BD for 14 days) or Ribavirin (for 5 days)

4.Critical cases:

- a. Oseltamivir (150 mg BD for 5 days)
- b. Kaletra (Lopinavir/Ritonavir) (for 5 days)
- c. Ribavirin (for 5 days)

d. Hydroxychloroquine or Chloroquine (for 14 days)

Investigational therapies: ● Favilavir (Favipiravir) ● Remdesivir
● Teicoplanin ● Tocilizumab

DISCUSSION:

A number of investigations to better understand the source of the outbreak in China are currently underway or planned, including investigations of human cases with symptom onset in and around Wuhan in late 2019, environmental sampling from markets and farms in areas where the first human cases were identified, and detailed records on the source and type of wildlife species and farmed animals sold in these markets.

PREVENTION:

There are many advances you can take to diminish your gamble of contamination from the COVID-19 infection and lessen the gamble of spreading it to other people. WHO and CDC suggest following these safety measures:

- Receive an immunization shot. Coronavirus antibodies decrease the gamble of getting and spreading COVID-19.
- Stay away from close contact (inside around 6 feet, or 2 meters) with anybody who is wiped out or has side effects.
- Keep distance among yourself as well as other people (inside around 6 feet, or 2 meters) when you're in indoor public spaces on the off chance that you're not completely inoculated. This is particularly significant on the off chance that you have a higher gamble of major disease. Remember certain individuals might have COVID-19 and spread it to other people, regardless of whether they have side effects or don't realize they have COVID-19.
- Keep away from swarms and indoor spots that have unfortunate wind current (ventilation).
- Clean up frequently with cleanser and water for something like 20 seconds, or utilize a liquor based hand sanitizer that contains no less than 60% liquor.
- Wear a facial covering in indoor public spaces on the off chance that you're in a space with countless individuals with COVID-19 in the emergency clinic and new COVID-19 cases, if you're inoculated. The CDC suggests wearing the most defensive veil conceivable that you'll wear routinely, fits well and is agreeable.
- Cover your mouth and nose with your elbow or a tissue when you hack or wheeze. Discard the pre-owned tissue. Clean up immediately.
- Try not to contact your eyes, nose and mouth.
- Abstain from sharing dishes, glasses, towels, bedding and other family things on the off chance that you're debilitated.
- Clean and sanitize high-contact surfaces, like door handles, light switches, gadgets and counters, routinely.
- Remain at home from work, school and public regions and remain at home in confinement assuming that you're wiped out, except if you will get clinical consideration. Keep away from public transportation, cabs and ride-flagging down administrations in the event that you're debilitated.

CONCLUSION :

Coronavirus is a zoonotic virus, an RNA virus in the family Coronaviridae of the order Nidovirales. It is a family of viruses that cause respiratory infections, which were first isolated in 1937 and designated coronaviruses, because they have a crown-like appearance under microscopy, in 1965. The types of coronavirus known to date are as follows: the alpha coronaviruses HCoV-229E and HCoV-NL63; the beta coronaviruses HCoV-OC43 and HCoV-HKU1; SARS-CoV, which causes severe acute respiratory syndrome (SARS); MERS-CoV, which causes Middle East respiratory syndrome (MERS); and SARS-CoV-2, a new coronavirus described in late 2019 after cases were reported in China, which causes the disease known as coronavirus disease 2019 (COVID-19).

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