MANAGEMENT OF COVID-19

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ABSTRACT

- COVID-19 is a pandemic that has killed millions of lives across the globe and has changed people's daily lives. This virus caught the world by surprise, since the no one was not prepared for such a pandemic and there were no existing vaccines and treatment modalities. Diagnostic COVID tests have now been developed to detect the virus in the body. Three vaccines have been approved by the FDA (J&J, Moderna and Pfizer), which produce antibodies in the blood. A few therapies have been developed to manage COVID-19. Despite a small progress has been made, COVID-19 continues to be an overwhelming challenge to the world.

INTRODUCTION

- The COVID-19 global pandemic that started in March 2020 has greatly altered people's lives and resulted in the deaths of millions.
- In the U.S. itself, we have lost 540,000 precious (and counting) lives
- The COVID-19 caught the World by a total surprise, no known or tested treatment modalities were available.
- COVID has also resulted in families struggling with their health, availability of resources, and living conditions, since their daily routines have drastically changed with financial hardships.
- We have researched the developments in the management of this virus, including some wild theories about how to treat such cases.

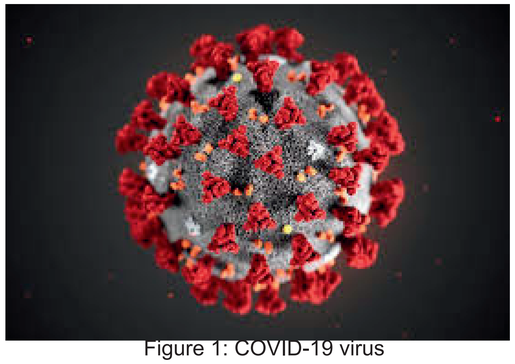


Figure 1: COVID-19 virus

INCUBATION PERIOD FOR COVID-19 VIRUS

- About 14 days, with a median time of 4-5 days from exposure to onset of symptoms.

SYMPTOMS OF COVID

- Fever or chills, cough
- Shortness of breath
- Fatigue, headache
- Loss of taste or smell
- Sore throat, congestion or runny nose
- Nausea or vomiting, diarrhea

SEVERITY OF ILLNESS

- Mild to moderate (mild symptoms up to mild pneumonia): 81%
- Severe (dyspnea, hypoxia, or more than 50% lung involvement on imaging): 14%
- Critical (respiratory failure, shock, or multiorgan system dysfunction): 5%

RISKS OF COVID

- Most people who contract Covid-19 do not have serious risks and usually just have mild illnesses.
- Some people can get serious complications after contracting Covid-19 affecting almost every vital organ in the body, such as lungs (pneumonia, acute respiratory distress syndrome, or ARDS), organ failure, heart problems (myocardial infarction), thrombosis, acute kidney injury, stroke, and increased susceptibility to viral and bacterial infections

MANAGEMENT OF COVID-19

- As is the case in several conditions, prevention is always the best practice.
- Details of the vaccines

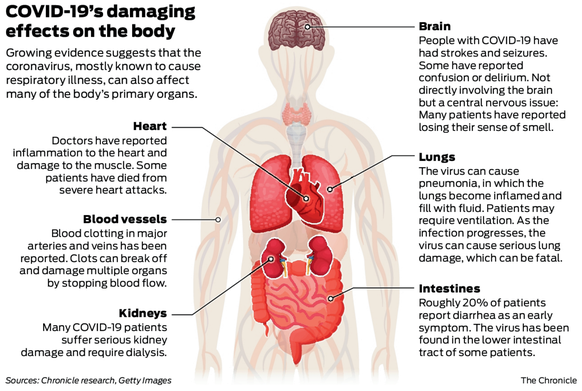
	Pfizer	Moderna	J&J
Percent efficacy	95%	94%	67%
Number of injections	2	2	1
Timing for 2nd dose	3 weeks	4 weeks	Not applicable
Onset of immunity	4 weeks	4 weeks	4 weeks
Duration of immunity	6 months	6 months	6 months
Storage Conditions	Sub-zero	Sub-zero	Refrigerator

FUTURE DIRECTIONS

- As our next project, we plan to study the management of the Vaccine Induced Thrombotic Thrombocytopenia (VITT), a common adverse effect of the Astra-Zeneca and J&J Vaccines.

WHAT ARE VACCINES?

- Vaccine uses your body's natural defenses to build resistance to specific infections and makes your immune system stronger.
- COVID-19 vaccines using mRNA instruct our cells to make a protein called "spike protein" which is found on the surface of the virus that causes COVID-19 illness.
- The spike protein attaches to the cell surface and our immune system recognizes it as a foreign body and starts making antibodies against it. This allows our bodies to be able to fight against future infections.
- Vaccine uses your body's natural defenses to build resistance to specific infections and makes your immune system stronger.
- The mRNA is genetic material that is constantly produced by our cells to make normal proteins.
- COVID-19 vaccines using mRNA instruct our cells to make a protein called "spike protein" which is found on the surface of the virus that causes COVID-19 illness.
- After the protein is made, the cell breaks down the instructions and gets rid of the mRNA so that nothing stays around.



TREATMENT OF COVID-19

At home
- Most people recover from Covid-19 symptoms at home.
- Acetaminophen or ibuprofen, to reduce fever.
- Drinking plenty of water or receiving intravenous fluids to stay hydrated.
- Getting plenty of rest to help the body fight the virus.

In a hospital for severe cases
- Remdesivir (Veklury) is an antiviral medication approved by FDA to treat COVID-19.
- Dexamethasone is a steroid and is recommended for patients who need supplemental oxygen.

WILD, UNPROVEN, NONSCIENTIFIC TREATMENTS

1. Injection of Lysol in body, use of hydroxychloroquine
2. Injections that contain bear bile powder.
3. Plant extracts from Lonicera japonica, Astragalus membranaceus etc.
4. Chiropractic care, physical therapy

These methods to manage Covid-19 have no proven benefits and are considered ridiculous by the medical community, and are not recommended.

SPECIAL POPULATION

1. Pregnant women - No studies have been conducted. Pregnant women are at risk for getting severe disease. There are no contraindications for the use of vaccines in pregnant women.
2. Immunocompromised patients: no contraindications but efficacy of the vaccine may be reduced
3. Patients with previous covid infection who have received convalescent plasma or monoclonal antibodies should wait 90 days before getting the vaccine

CONTRAINDICATIONS

- Severe allergic reaction to the vaccine and its ingredients.

CONCLUSIONS

- The management of Covid-19 was a global effort handled by private companies and governments working together.
- The combined efforts resulted in the production of vaccines that would help fight against the virus.
- The treatment has not yet been fully developed but a few resources have been available. Antiviral agents need to be created in order to counteract the virus.

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