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**16/MHS06/049**

Virology assignment

**QUESTION**: Discuss the etiology, origin, structure, and pathophysiology of COVID-19

**ANSWERS**:

CORONA VIRUS

Corona viruses are a large family of enveloped RNA viruses and it has 4 groups

* Alpha corona viruses
* Beta corona viruses
* Gamma corona viruses
* Delta corona viruses

Corona virus is known to cause various diseases in animals including livestock’s and in humans too they cause mild cold, cough, upper respiratory infections.

COVID-19 is similar to SARS.

1. **ETIOLOGY**

Coronavirus disease (COVID-19) is caused by SARS-COV2 and we know for sure that COVID-19 is common in certain species of animals such as bats and pangolins, which might also be the origin, though transmission from animals to humans is rare and has not been recorded.

1. **ORIGIN**

According to the World Health Organization (WHO), COVID-19 is a fast spreading infectious disease. Corona virus was unknown before the outbreak began in Wuhan, China, in December 2019. Corona virus is said to originate from bats and pangolins, and based of on the population affected, it might have started spreading from a place called wet animal market in a wuhan city, China.

1. **STRUCTURE**

Corona virus genome is a large, single stranded positive sense RNA molecules containing all information necessary for the making of viral components. The RNA is coded with structural proteins forming a complex known as nucleocapsid. The nuclei capsid is enclosed in an envelope which is a lipid membrane with embedded proteins. From the envelope they are spikes which makes it look like a crown. The virus has a shell of thick spikes that latch onto human cell receptors. This virus can be more infectious in humans, because it’s similar to the lock and the key, the virus and the receptor. And it can spread more widely in the human population, because it's so efficient at the binding. The virus binds with human respiratory cells in order to hijack them to produce more viruses, the virus attaches to a receptor on respiratory cells called angiotensin-converting enzyme 2, or ACE2.

1. **PATHOPHYSIOLOGY**

A person infected with corona virus would experience some symptoms such as; coughing diarrhea, vomiting, fever, nausea, and loss of breath

The virus affects the respiratory system and once the virus enters the respiratory system, it affects the alveoli by binding to receptors in humans.

The fever comes within 3-6 days which is the incubation period of the virus.