**MATRIC NUMBER: 18/MHS01/160**

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**COURSE CODE: ANA 202**

**ASSIGNMENT :** Discuss the anatomical implication of the Covid-19 on the respiratory system of human.

SARS-CoV-2 is a coronavirus that causes coronavirus disease 2019 (COVID-19). Coronaviruses, in general, are a family of viruses that target and affect mammals’ respiratory systems. According to their specific characteristics, there are four main “ranks” (genera) of coronaviruses, which are called alpha, beta, delta, and gamma. The SARS COV-2 (severe acute respiratory syndrome coronavirus 2) is a beta virus.

CoV-2 uses its spike glycoprotein (S), a main target for neutralization antibody, to bind its receptor, and mediate membrane fusion and virus entry.

It affects people of all ages but older people and people with preexisting medical conditions (asthma , diabetes, heart diseases) are at a higher risk of being severely ill from the infection or even die.

The novel Covid-19 begins in the lungs like a flu as it is a respiratory disease. They can be spread when an infected person coughs or sneezes and the droplets is touched or inhaled by someone in close contact. It then causes flu-like symptoms like cough or fever which can later progress to pneumonia or asthma.

It affects the lungs in three phases:

* Viral replication phase
* Immune hyperactivity phase
* And Pulmonary Destruction phase

However, most infected patients don’t phase through all the phases and just 25% suffered respiratory failure.

**VIRAL REPLICATION** **PHASE:** In the early days of an infection, the novel coronavirus rapidly invades human lung cells. Those lung cells come in two classes: ones that make mucus and ones with hair-like batons called cilia. The SARS Covid-19 infect and kill cilia cells, which then sloughed off and filled patients’ airways with debris and fluids which causes shortness of breath in patients.

**IMMUNE HYPERACTIVITY PHASE:** The immune system is aroused by the presence of a viral invaders , then our bodies step up to fight the disease by flooding the lungs with immune cells to clear away the damage and repair the lung tissue.

When working properly, this inflammatory process is tightly regulated and confined only to infected areas but when the immune system isn’t functioning well, it misbehaves and those cells kill anything in the body, including the healthy tissue.

So the body is more damaged by the immune system.

**PULMONARY DESTRUCTION:** The lungs continue to get damaged and later results in respiratory failure which later leads to permanent lung damage or death.

The SARS virus punches holes in the lungs, giving them a **honeycomb-like** appearance which is caused by the hyperactivity of the immune system which creates scars that both protects and stiffens the lungs. When that occurs, patients often have to be put on ventilators to assist their breathing. Meanwhile, inflammation also makes the membranes between the air sacs and blood vessels more permeable, which can fill the lungs with fluid and affect their ability to oxygenate blood.