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DEPARTMENT: Human Anatomy.

COURSE: Gross Anatomy of Thorax and Abdomen.

QUESTION: Covid-19 is the ongoing viral pandemic in the world and the reason we are at home. Discuss the anatomical implications of this virus on the respiratory system of humans.

ANSWER

The corona virus typically affects the respiratory system, entering into the body generally through the mouth or nose, from there it makes way down into the air sacs inside the lungs known as alveoli causing symptoms such as coughing, shortness of breathe and respiratory illnesses which affects different parts of the respiratory system such as lungs, lining of the throat and airways. Once the virus gets to these different parts of the respiratory system, it uses its spike proteins to hijack cells and the primary genetic programming of any virus is to make copies of itself, once the mRNA virus has entered a cell, the new copies are made and the cell is destroyed during this process releasing new viruses to infect neighboring cells in the alveolus. The whole process can occur without the awareness of the individual that is affected at first and this has lead to the effective spread of the virus. Some people might develop acute respiratory distress syndrome leading severe breathing difficulties. The process of hijacking cells to reproduce causes inflammation in the lungs which triggers an immune response and as this happens, fluid begins to accumulate in the alveoli causing a dry cough and difficult breathing and in most cases, the symptoms appear as a case of flu. The immune system response to inflammation in the lungs can cause what is known as cytokine storm.

The virus can have severe implications such as pneumonia and this occurs if the virus causes infection of one or the two lungs, the tiny air sacs in the lungs will be filled with fluid or pus making it harder to breathe. The virus damages both the walls, lining cells of the alveolus and the capillaries. The debris that accumulates because of all of the damage lines the wall of the alveolus covering the whole wall completely, the damage to the capillaries also causes them to leak plasma proteins that add to the wall’s thickness. Eventually, the wall of the alveolus is thicker than normal and the thicker it gets, the harder it becomes for oxygen to be transferred and the more the patient falls short of breathe and then starts developing severe illnesses and possibly death and also when enough alveoli have collapsed, the patient is placed on a ventilator for breathing assistance. The immune system response can cause more damage to the body’s own cell than to the virus it is trying to kill and this might be the reason why the conditions of young and healthy patients deteriorate rapidly.