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18/MHS01/192

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ANATOMICAL IMPLICATION OF COVID-19 ON THE HUMAN RESPIRATORY SYSTEM

The virus, officially named SARS-CoV-2, enters the body- generally through the nose or mouth.

It makes its way down to the air sacs of the lungs. Once in the alveoli, the virus uses its distinctive spike proteins to “hijack” cells.

The primary genetic programming of any virus is to make copies of itself, CoVid-19 is no exception.

Once the virus’ RNA has entered a cell, new copies would be made. In this process the cell would be killed, releasing new viruses to infect neighboring cells in the body. At this period, the individual unaware of being affected by the coronavirus.

 IMMUNE RESPONSE

The process of hijacking cells to reproduce causes inflammation in the lungs which triggers an immune response. As this process unfolds, fluid begins to accumulate in the alveoli. This fluid dilutes the surfactant(TYPE II cells) making the alveolar collapse thus reducing gas exchange and increases the work of breathing and also induces dry cough.

It’s symptoms take the same course as a flu in 80-85% of infected people.

In 15-20% cases, the immune system’s response to inflammation in the lungs can cause a “cytokines storm”. This runaway response can cause more damage to the body’s own cells than to the virus it’s trying to defeat. That’s why it’s easy to deteriorate in healthy individuals.

Both acute respiratory distress syndrome (ARDS) and high-altitude pulmonary edema (HAPE) are being investigated as causes of alveoli collapse.

In the most severe cases, systemic inflammatory response syndrome (SIRS) occurs as the protein-rich fluid from the lungs enters the bloodstream, resulting in septic shock and multi-organ failure. This is often the cause of death for people who have succumbed to a COVID-19 infection.

REFERENCE

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