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MARTIC NO-18/MHS07/002

COURSE TITLE-GROSS ANATOMY OF THORAX, ABODOMEN, PELVIC& PERINEUM

COURSE CODE-ANA 202

DATE-18/04/2020

QUESTION-Convid-19 is the ongoing viral pandemic in the world and the reason you are at home. Discuss the anatomical implication of this virus on the respiratory system on humans.

 ANSWER- Respiratory diseases caused by human coronavirus infection are of both medical and socio-economic importance. Currently, they are studied in various model systems, ranging from cell lines to animal human population vulnerable to emerging coronavirus infections. Both the Severe Acute Respiratory Syndrome and Middle East Respiratory Syndrome coronaviruses have recently crossed the species barrier and entered the human population to cause severe disease. In this review, we summarize the current knowledge on human coronavirus infection emphasizing the usefulness of organotypic human airway cultures as a model system.

What became known as Covid-19, or the coronavirus, started in late 2019 as a cluster of pneumonia cases with an unknown cause? The cause of the pneumonia was found to be a new virus – severe acute respiratory syndrome coronavirus 2, or Sars-CoV-2. The illness caused by the virus is Covid19.

Those who get an infection in the upper respiratory tract, which, “means a person has a fever and a cough and maybe milder symptoms like headache or conjunctivitis”

How does the pneumonia develop?

When people with Covid-19 develop a cough and fever, this is a result of the infection reaching the respiratory tree – the air passages that conduct air between the lungs and the outside. “The lining of the respiratory tree becomes injured, causing inflammation. This in turn irritates the nerves in the lining of the airway. Just a speck of dust can stimulate a cough. But if this gets worse, it goes to the gas exchange units, which are at the end of the air passages. “If they become infected they respond by pouring out inflammatory material into the air sacs that are at the bottom of our lungs. If the air sacs then become inflamed, this causes an “outpouring of inflammatory material [fluid and inflammatory cells] into the lungs and we end up with pneumonia. The lungs that become filled with inflammatory materials are unable to get enough oxygen to the blood stream, reducing g the body’s ability to take on oxygen and carbon dioxide. “That’s the usual cause of death with severe pneumonia.

IMPLICATIONS.

As copies of the virus multiply, they burst out and infect neighboring cells. The symptoms often start in the back of the throat with a sore throat and a dry cough. The virus then “crawls progressively down the bronchial tubes. When the virus reaches the lungs, their mucous membranes become inflamed. That can damage the alveoli or lung sacs and they have to work harder to carry out their function of supplying oxygen to the blood that circulates throughout our body and removing carbon dioxide from the blood so that it can be exhaled.

“If you get swelling there, it makes it that much more difficult for oxygen to swim across the mucous membrane,” said Dr. Amy Compton-Phillips, the chief clinical officer for the Providence Health System, which included the hospital in Everett, Wash. The swelling and the impaired flow of oxygen can cause those areas in the lungs to fill with fluid, pus and dead cells. Pneumonia, an infection in the lung, can occur. Some people have so much trouble breathing they need to be put on a ventilator. In the worst cases, known as Acute Respiratory Distress Syndrome, the lungs fill with so much fluid that no amount of breathing support can help, and the patient dies.

 There is evidence that pneumonia caused by Covid-19 may be particularly severe. Cases of coronavirus pneumonia tend to affect all of the lungs, instead of just small parts. Once we have an infection in the lung and, if it involves the air sacs, then the body’s response is first to try and destroy [the virus] and limit its replication. This “first responder mechanism” can be impaired in some groups, including people with underlying heart and lung conditions, diabetes and the elderly. It is said that, generally, people aged 65 and over are at risk of getting pneumonia, as well as people with medical conditions such as diabetes, cancer or a chronic disease affecting the lungs, heart, kidney or liver, smokers, Indigenous Australians, and infants aged 12 months and under.

“Age is the major predictor of the risks of pneumonia. Pneumonia is always serious for an older person and in fact it used to be one of the main cause of death in the elderly. Now we have very good treatments for pneumonia.” “It’s important to remember that no matter how healthy and active you are, your risk for getting pneumonia increases with age. This is because our immune system naturally weakens with age, making it harder for our bodies to fight off infections and diseases.”