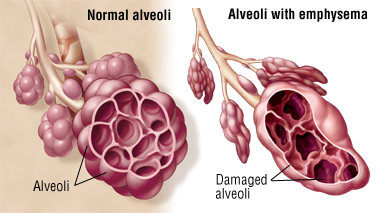
**Lung Diseases and Treatments**

Emphysema is an irreversible lung condition that is the source of shortness of breath. The alveoli (air sacs) in the lungs of emphysema patients are damaged. As a result, larger air spaces are created inside the lungs instead of the regular multiple small ones. This is due to the inner walls of the alveoli weakening and rupturing over time. Due to this, the surface area of the lungs is reduced resulting in a reduction of oxygen reaching the blood stream. When exhaling, the alveoli that have been damaged do not work effectively and the old air inside the lungs becomes trapped, preventing oxygen to enter. The majority of people who have been diagnosed with emphysema have also been diagnosed with chronic bronchitis. This is when the bronchial tubes are inflamed causing a persistent cough.

Smoking is the main cause of Emphysema. This means that Emphysema can be defined as one of the most preventable respiratory diseases. Other causes include pollutants within the air in the home and/or workplace, genetic factors, and other respiratory infections. Due to smoking causing the irritation of airways, inflammation and damage to the cilia lining the bronchial tubes occurs. Difficulty clearing the airways, production of mucus, and swollen airways are all a result of this. All of these changes within the body can lead to the main symptom of Emphysema which is shortness of breath.

According to Cleveland Clinic (2021) Emphysema can be identified with the symptoms of “coughing, wheezing, shortness of breath, chest tightness and/or an increased production of mucus.” Most commonly, 50 percent or more of the lung tissue is damaged before patients notice any symptoms. Until this time, the only symptoms seen are gradual and are mostly shortness of breath and fatigue. Both of these symptoms are common towards many other illnesses therefore making Emphysema hard to diagnose before all of the tissue within the lungs are damaged.

Chronic obstructive pulmonary diseases (COPDs) such as Emphysema, are mainly diagnosed using a test called a spirometry. A spirometry tests lung function by measuring the amount of air you inhale and exhale and how quickly the exhalation happens. Spirometry may also be periodically used to monitor the condition of patients’ lungs to check whether or not the treatment they have been administered is improving their condition and if they are breathing better. Other tests that help in diagnosing Emphysema include any other lung function (and/or) breathing tests, chest x-rays, and CT scans.

Emphysema has no cure; however, it is treatable. Symptoms can be reduced using the appropriate management techniques in order to improve patients’ quality of life and prevent them from being admitted to the hospital. Management techniques include quitting smoking immediately – this is the most effective treatment for Emphysema -, the avoidance of air pollutants, rehabilitation programs for the lungs, oxygen treatment (severe cases), medications – anti-inflammatory, bronchodilators (widens airways and loosen phlegm), antibiotics -, stress management, and regular exercise.

Tuberculosis (TB) is a serious infectious lung disease that can cause illness or death. TB is caused by a bacterium called Mycobacterium Tuberculosis. TB can be categorised into active and inactive. Inactive TB is not infectious. People that have been infected with the TB bacteria may be able to avoid becoming sick as their bodies are able to fight off the infection. Active TB is infectious. People that have active TB will become sick because the bacteria will multiply and grow, and their immune system will not be able to fight the bacteria off.

TB causes symptoms of fatigue, coughing, weight loss, fever, sweating, chest pains, and swollen lymph glands. TB is spread when a person with active TB coughs, sneezes, shouts, speaks, sings. This then results in the bacteria being carried through the air and into people’s lungs when they breathe in. TB can be diagnosed by taking a TB skin and blood test, sputum tests and chest x-rays when suspected by a doctor. The results of the tests can take 6 weeks or longer to get back to you.

In order to reduce the risk of active TB developing in patients with inactive TB, doctors may prescribe tablets. For active TB, a combination of special antibiotics that must be taken for at least six months will be prescribed. Initial treatment may be required in hospital. If full treatment has been completed, patients can be cured of TB disease.

The vaccine for TB is called Bacillus Calmette-Guerin (BCG) vaccine. The BCG vaccine isn’t for prevention purposes but it prevents TB from becoming life-threatening, especially in young children. TB rates in Australia are very low, resulting in the BCG vaccine not having to be used often.

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