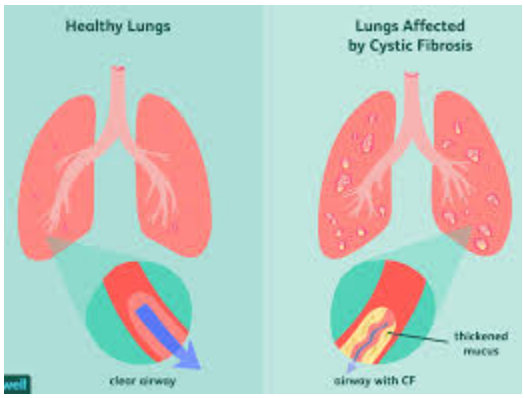
Lung Disease

Cystic fibrosis

Cystic Fibrosis (CF) is an inherited lung disorder that brings severe damage to the lungs, digestive system and other major organs in the body. CF affects the cells that produce mucus, sweat and digestive liquids. Usually, these secreted liquids are normally slippery and thin, but in people that have CF, these liquids become thick and sticky due to a defective gene. Instead of acting as lubricants, the secretions clog up tubes, ducts, and pathways, especially the ones in the lungs and the pancreas.



Symptoms of Cystic Fibrosis

Cystic fibrosis can usually be diagnosed within the first month of life, likely before symptoms develop. CF signs and symptoms often vary regularly, depending on the severity of the disease in the person, even the symptoms in the same person can improve or worsen over time as time passes. It is likely that most people with CF will not experience symptoms until their teenage years or adulthood. People that are not diagnosed until adulthood usually have milder disease and are more likely to have atypical symptoms such as, recurring periods of an inflamed pancreas, pneumonia and infertility. Parents of children that have CF can often taste salt when they kiss their children, this is because more often than not people with CF have a higher than usual level of salt in their sweat.

Respiratory signs and symptoms

The sticky thick mucus of CF clogs the tubes that carry air in and out of the lungs. This can cause many symptoms such as:

- A persistent cough that produces mucus
- Wheezing
- Repeated lung infections
- Swollen nasal passage/stuffy nose
- Sinusitis
- Intolerance to exercise

Digestive signs and symptoms

The thick mucus can often also block tubes that carry the digestive enzymes to your small intestine from your pancreas. Your stomach and intestines aren't able to breakdown and completely absorb all the nutrients from the food you eat. The symptoms usually are:

- Foul-smelling, greasy stools
- Poor weight gain and growth
- Intestinal blocks, especially in newborns
- Severe constipation may include frequent straining while trying to pass stools.
- Rectal prolapse

Causes of Cystic Fibrosis

In Cystic Fibrosis, a mutation in a gene (The Cystic Fibrosis Transmembrane Conductance Regulator -CFTR- gene) changes a protein that regulates the movement of salt in and out of the cell. The result of this is a thick, sticky mucus in the respiratory and digestive systems. Often increased salt in sweat and in some cases effects on the reproductive system. The severity of the disease is associated with the severity of the mutation. Children must inherit one copy of the gene from both the mother and father to be able to have the disease. If the child only inherits one copy, they will not develop CF. They will still be carriers and are still able to pass the gene on to their own children if their partner also has the gene. Because CF is an inherited disease, it runs in family lines so families history with the disease is a big risk factor to the likely hood of having the disease. CF occurs in all races but it is most common in white people of Northern European descent.

Current Treatments/Prevention of Cystic Fibrosis

There is no treatment for cystic fibrosis, but symptoms can be eased by treatments, reduce complications and improve quality of life for those who have CF. Early and aggressive intervention is recommended to slow down the progression of CF, leading to a longer life. The management of CF is very complex. The main milestones for treatment include:

- Preventing and controlling infections that occur in the lungs
- Removing and loosening mucus from the lungs
- Treating and preventing intestinal blockages
- Providing adequate nutrition

Options for medications include:

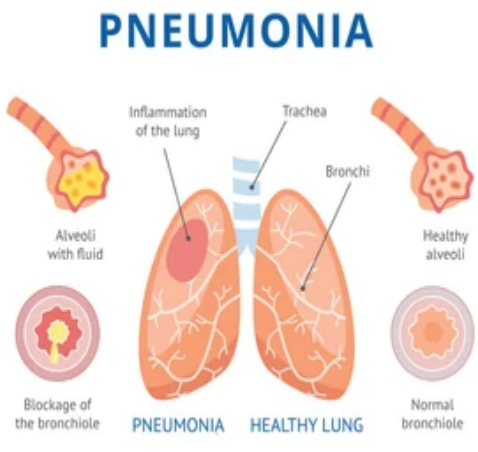
- Antibiotics to treat lung infections
- Mucus-thinning drugs, such as hypertonic saline, help you cough up more of the mucus, helping to improve the function of the lungs
- Inhaled medications called bronchodilators that can help with keeping your airways open by relaxing the muscles around the bronchial tubes.

Airway clearance techniques (chest physical therapy -CPT-) can often relieve mucus obstruction and help to reduce infection and inflammation in the airways. These techniques loosen thick mucus in the lungs making it easier to cough and release the mucus. Airway clearing techniques are usually done several times a day. A few techniques are:

- Clapping with cupped hands on the back and front of the chest
- Mechanical devices can also help to loosen lung mucus devices include a tube that you blow into and a machine that pulses air into the lungs

Pneumonia

Pneumonia is an infection that causes inflammation of the air sacs in the lungs. The air sacs can fill with liquid or pus (purulent material), causing harsh coughs with phlegm or pus, chills, fever, and difficulty with breathing. Bacteria, viruses and fungi are all organisms that can cause pneumonia. Pneumonia often ranges in severity and seriousness from mild to life-threatening. It is the most



serious and life-threatening in young children and infants, people over the age of sixty-five, and people with previous health problems and weakened immune systems.

Symptoms of Pneumonia

Pneumonia symptoms range from mild to severe, depending on factors such as the type of germ that caused the infection, your age and overall health. The mild symptoms of pneumonia are common to the symptoms of a cold or the flu but last for a lot longer. Newborns and infants may not show any sign of the infection. They may vomit, have a fever and a cough, appear restless and tired with no energy, or have difficulty breathing and eating.

Signs and symptoms of Pneumonia

- Chest pain when you cough or breath in and out
- Confusion or changes in mental awareness (most common in adults aged 65 and older)
- Fatigue
- Cough
- Sweating, shaking chills and sweating
- Lower than normal body temperature (most common in adults aged 65 and older and people with weak immune systems)
- Shortness of breath
- Nausea, diarrhea and vomiting

Causes of Pneumonia

Pneumonia is most often caused by many different germs. The most common are bacteria and viruses in the air that is being breathed. Usually, your body will prevent your lungs from getting these infections. But sometimes these germs can overpower your immune system, even if you are considered healthy. Pneumonia is classified according to the types of germs that caused the disease and where these germs came from:

Community-acquired pneumonia is the most common type of pneumonia. It occurs outside of hospitals or other health care facilities. It can be caused by:

- Bacteria. One of the most common causes of bacterial pneumonia is Streptococcus pneumonia. This type can occur on its own or after you have had the flu or a cold.
- Bacteria-like organisms. Mycoplasma pneimoniae typically produces milder symptoms.
- Fungi. This type of Pneumonia is the most common in people with chronic health problems or weak immune systems, and in people who have inhaled large doses of organisms.

Hospital-acquired pneumonia is gained from a stay in the hospital. It can be very serious because the bacteria causing it may be more resistant to antibiotics and because the people who get it are usually already sick.

Health care-acquired pneumonia is a bacterial infection that occurs in people that live in long-term care facilities or who receive care in outpatient clinics. Like hospital-acquired pneumonia, it can be caused by bacteria that are more resistant to antibiotics.

Aspiration pneumonia occurs when you inhale drink, food, saliva or vomit into your lungs. Aspiration is more likely if something disturbs your normal gag reflex, such as a brain injury or a problem swallowing, or the excessive use of alcohol and drugs.

Current Treatment/Prevention of Pneumonia

To help prevent pneumonia you can:

- Get vaccinated. Vaccines are available to prevent most types of pneumonia.
- The practise of good hygiene. To protect yourself against respiratory infections that sometimes lead to pneumonia, wash your hands or use an alcohol-based hand sanitizer regularly.
- Keep your immune system strong by getting enough sleep, exercise often and eat a healthy diet.
- Do not smoke, it damages and destroys your lungs natural defences against respiratory infections.

Treatment of pneumonia can often occur at home with medication in mild cases. Specific treatments depend on the seriousness and severity of the individual's pneumonia, age and overall health. Some options include:

- Antibiotics. These medicines are used to treat bacterial pneumonia. It can take time to identify the type of bacteria causing the individuals pneumonia and also to choose the best antibiotic to treat the individual.
- Cough medicine. This medicine is used to calm and reduce the cough so that the lungs can rest.

Hospitalization may occur if you are aged sixty-five and older, your kidney function has declined, you have rapid breathing, your temperature is below normal or your heart rate is higher or lower than usual. You may be placed on a ventilator or a breathing machine in the Intensive Care Unit if your symptoms are severe. Children may also be hospitalized if they are younger than two months, they are sleeping excessively, they are having trouble breathing or they appear dehydrated.

References

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