

Gas Exchange Reflection

After watching the assigned YouTube videos over tuberculosis, chronic obstructive pulmonary disease, pneumonia, sleep apnea, and chest tubes I learned that all of these conditions affect how the lungs perform gas exchange. The two diseases that I found the most interesting were tuberculosis and chronic obstructive pulmonary disease. I learned that tuberculosis is one of the oldest diseases among humans. I also learned that it is one of the leading causes of infection and death as well as one third of the world's population suffer from tuberculosis. Tuberculosis is highly contagious, and it is transmitted from person to person via airborne droplets. When a non-infected person inhales an infectious particle, the mycobacteria in that droplet particle is planted into their lower and middle lobes of their lungs. I learned that mycobacteria love the lungs because it is the ideal environment for it to multiply. I learned that new emerging bacteria make treatment more difficult as they are antibiotic resistant. There are many risk factors such as exposure, environment, malnutrition, weak immune system, age, and comorbidities. I also learned about the difference between latent and active tuberculosis infection. I really found chronic obstructive pulmonary disease interesting because I have witnessed a family member battle this disease. I learned that chronic obstructive pulmonary disease hinders breathing by limiting the amount of oxygen that can be exchanged in the lungs. Chronic obstructive pulmonary disease is the fourth leading cause of death and 24 million have this disease in the United States. I learned that there are two types of chronic obstructive pulmonary disease, emphysema, and chronic bronchitis. Emphysema occurs when there is damage to alveolar walls in between alveoli and it loses shape, resulting in larger and few air sacs instead of multiple tiny ones. Emphysema lessens the surface area for gaseous exchange. Chronic Bronchitis is when the lungs clog with mucous from chronic inflammation. Chronic obstructive pulmonary disease is progressive and in the beginning a person may not experience any signs and symptoms. Once diagnosed, it cannot be reversed but it can be treated with medications and changes in lifestyle. Chronic obstructive pulmonary disease is caused by inhaling pollutants, environmental, smoking and rarely genetics. Spirometry, ABG, CT scan is used to diagnose COPD. Treatment includes bronchodilators, inhaled steroids, combo inhaler, daliresp, theophylline, oral steroids, antibiotics, lung therapies (supplemental O₂), surgery (lung volume reduction surgery, bullectomy, lung transplant). Another disease I learned about in the assigned videos is pneumonia which is causes alveoli to fill with pus or fluid. Babies, the elderly, and the immunocompromised are most at risk for developing pneumonia. There are two types of pneumonia, bronchial and lobar. There are types of pneumonia based on how they are transmitted, and they are hospital acquired, community acquired, ventilator acquired, opportunistic, aspiration pneumonia. Pneumonia can be a viral, bacterial, mycoplasma, or fungal infection. Signs and symptoms of pneumonia are fever, coughing with sputum, shortness of breath, cyanosis, and pleural pain. Diagnosis is established via respiratory assessment, sputum culture and blood test, CXR, CT scan, bronchoscopy (if antibiotics aren't effective) and pulse oximetry. Treatment is usually antibiotics and/or antiviral medications. Prevention is hand hygiene, staying healthy, quitting smoking, pneumonia vaccination (babies, immunocompromised, adults 65+) and a yearly flu shot.