

Pathophysiology of Lung Cancer

The lungs are arguably one of the most important organs in the body. Any damage or disease to the lungs can jeopardize the whole body. It is important to understand how lung diseases or disorders, like lung cancer, affect the body, know how to watch out for them, and what diagnostics can be done to identify the disease before it is too late. Lung cancer is one of the cancers with the highest mortality rates in the United States.

Disease Process of Lung Cancer

The disease process of lung cancer is highly complex, and it is theorized that repeated exposure to carcinogens, like cigarette smoke, leads to dysplasia of lung epithelium (NIH, 2023). If exposure to the carcinogen continues, it can lead to genetic mutations and begin to affect protein synthesis, thus disrupting the cell cycle. Over time, the tumor size will begin to increase and begin having local effects throughout the body. Coughing due to bronchial compression due to distant metastasis, stroke-like symptoms due to brain metastasis, and paraneoplastic syndrome are all secondary effects the body will begin to experience. (NIH, 2023). Overall, oxygen exchange will become impaired and the whole body will suffer.

Signs and Symptoms

According to the National Library of Medicine, there are “no specific signs and symptoms for lung cancer and once the disease does begin to present itself, it is already at an advanced stage” (NIH, 2023). Research finds that coughing is present in 50 to 75% of lung cancer cases with a third of those patients experiencing hemoptysis. (NIH, 2023). However, these symptoms may be related to lung cancer or due to an underlying bronchopulmonary disease.

Diagnosis

Even though the signs of lung cancer aren't apparent until the disease is in a very advanced stage it is still important to get a proper diagnosis. Luckily there are a lot of tests, scans, and imaging tools to get a diagnosis. CT scans, X-rays, MRI scans, and nuclear tests are all imaging tests that look inside a patient's lungs (City of Hope, 2023). If these imaging tests show a possibility of lung cancer, further exams will take place to confirm the diagnosis. Sputum cytology, thoracentesis, or lung biopsy are all used to confirm a lung cancer diagnosis.