PERSPECTIVE

Understanding lung cancer: Types, risk factors, diagnosis, treatment, and prevention

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ABSTRACT

Lung cancer is a malignant tumor that develops in the lung tissue and is responsible for the exchange of gases in the body. It is one of the leading causes of cancer-related deaths worldwide. There are two main types of lung cancer: Non-Small Cell Lung Cancer (NSCLC) and Small Cell Lung Cancer (SCLC). NSCLC is the most common type, accounting for about 85% of all lung cancers. SCLC is less common and is more aggressive. Unfortunately, lung cancer is often asymptomatic in its early stages, which makes it difficult to detect. Risk factors for lung cancer include smoking, exposure to second-hand smoke, exposure to radon gas, exposure to certain chemicals and substances, such as asbestos, and a family history of lung cancer. Smoking is by far the most significant risk factor for lung cancer, accounting for about 85% of all cases. Treatment for lung cancer depends on the type and stage of the cancer, as well as the overall health of the patient. The prognosis for lung cancer is generally poor, with a five-year survival rate of only 19%. Prevention of lung cancer is crucial, especially since smoking is the leading cause of the disease. The best way to prevent lung cancer is to quit smoking and to avoid exposure to second-hand smoke. In recent years, there have been significant advancements in the diagnosis and treatment of lung cancer, including low-dose CT screening, targeted therapies, and immunotherapies. However, lung cancer remains a significant public health concern with an estimated 235,760 new cases of lung cancer expected to be diagnosed in the United States in 2021, and an estimated 131,880 people expected to die from the disease.

Key Words: *Lung cancer, Non-small cell lung cancer, Small cell lung cancer*

INTRODUCTION

Lung cancer is one of the leading causes of cancer-related deaths worldwide. It is a malignant tumor that develops in the lung tissue, which is responsible for the exchange of gases in the body. Lung cancer can arise in any part of the lung, including the bronchi, bronchioles, and alveoli. There are two main types of lung cancer: Non-Small Cell Lung Cancer (NSCLC) and Small Cell Lung Cancer (SCLC). NSCLC is the most common type, accounting for about 85% of all lung cancers. SCLC is less common and is more aggressive.

Lung cancer is often asymptomatic in its early stages, which makes it difficult to detect. Symptoms may include a persistent cough, chest pain, shortness of breath, hoarseness, coughing up blood, weight loss, and fatigue. Unfortunately, these symptoms may not appear until the cancer has advanced to a later stage, making treatment more difficult and less effective.

Risk factors for lung cancer include smoking, exposure to secondhand smoke, exposure to radon gas, exposure to certain chemicals and substances, such as asbestos, and a family history of lung cancer. Smoking is by far the most significant risk factor for lung cancer, accounting for about 85% of all cases.

Diagnosis of lung cancer usually involves imaging tests, such as chest X-rays, Computed Tomography (CT) scans, and Magnetic Resonance Imaging (MRI) scans. If a suspicious mass is detected, a biopsy may be performed to confirm the diagnosis. A biopsy involves removing a small piece of tissue from the lung and examining it under a microscope.

Treatment for lung cancer depends on the type and stage of the cancer, as well as the overall health of the patient. Treatment options may include surgery, radiation therapy, chemotherapy, targeted therapy, and immunotherapy. Surgery is the most common treatment for early-stage lung cancer, while chemotherapy and radiation therapy are often used to treat advanced-stage lung cancer. Targeted therapy and immunotherapy are newer treatments that target specific molecules or cells involved in the growth and spread of cancer cells. Unfortunately, the prognosis for lung cancer is generally poor, with a five-year survival rate of only 19%. This is largely due to the fact that most cases of lung cancer are diagnosed at a late stage when the cancer has already spread beyond the lungs. However, early detection and treatment can significantly improve the chances of survival. The five-year survival rate for patients with early-stage lung cancer is

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around 56%.

Prevention of lung cancer is crucial, especially since smoking is the leading cause of the disease. The best way to prevent lung cancer is to quit smoking and to avoid exposure to secondhand smoke. Other preventive measures include avoiding exposure to radon gas and other harmful substances, such as asbestos, and maintaining a healthy diet and exercise regimen.

In recent years, there have been significant advancements in the diagnosis and treatment of lung cancer. For example, low-dose CT screening has been shown to be effective in detecting lung cancer at an early stage in high-risk individuals. Targeted therapies and immunotherapies have also shown promise in treating certain types of lung cancer, especially those with specific genetic mutations. These treatments can be more effective and have fewer side effects than traditional chemotherapy.

Despite these advancements, lung cancer remains a significant public health concern. According to the American Cancer Society, an estimated 235,760 new cases of lung cancer will be diagnosed in the United States in 2021, and an estimated 131,880 people will die from the disease. In addition to the human toll, lung cancer also has a significant economic impact, with an estimated cost of $13.4 billion in direct medical expenses in the United States in 2015.