

HEALTH FOCUS ARTICLE

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Lung Cancer: Fresh Air on the Way?

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Surgeon General of the United States concluded in 1964 "cigarette smoking is the major cause of lung cancer..." which continues to be true even 40 years later. Global cigarette consumption continues to rise and smoking is estimated to be responsible for approximately 87 percent of cases of lung cancer, including 90 percent of cases in men and 79 percent of cases in women. Lung cancer is still the most common cause of cancer death in the United States and throughout the world, and caused approximately 154,900 deaths in the United States during 2002. New treatment modalities and other treatment advances have improved the outcome of lung cancer patients and are giving many lung cancer patients an improved quality of life. Yet the most important achievement against this deadly cancer comes every time an individual makes a decision to quit smoking.

Rarely encountered until the 1930s, lung cancer in the United States has run a parallel course to the growth of the tobacco industry. Other causes include radon, asbestos and other industrial materials, air pollution and 'second-hand' smoke.

If detected early, lung cancer is treatable, but there are rarely any early signs—except perhaps the presence of a cigarette between your lips.

Small cell lung cancer (SCCL), nearly always associated with smoking, is aggressive, rapidly spreading and difficult to treat. Non-small-cell lung cancer (NSCLC), accounting for 80 percent of all cases, may develop gradually over many years, and a long-term smoker may start to feel complacent—just at the time the risk is highest.

The risk of either type of lung cancer increases with the number of cigarettes smoked and even more dramatically with duration of smoking. A tripling of the dose, for example, triples the risk while a tripling of the duration of smoking increases the risk 100-fold. By age 65 or later, when most lung cancers are diagnosed, a person who started smoking as an adolescent is likely to be at very high risk, both as a heavy and a long-term smoker.

'Smoker's Cough' Not Normal

Brad and his co-workers who smoke several times a day in the parking lot outside their office frequently joke about lung cancer when one of them starts to cough. It's no laughing matter; a "smoker's cough" is never normal, particularly when it leads to coughing up a lot of sputum or bloody sputum. Other symptoms of cancer include an achy chest pain, shortness of breath, fatigue, unexplained weight loss, frequent colds, wheezing or trouble breathing. By the time these symptoms appear, however, the cancer has usually spread, and the prognosis is poor. About 85 percent of patients with metastatic cancer die within five years—often much sooner.

Cancers that are detected before they spread—unfortunately comprising only 10 to 15 percent of the total—can usually be removed by surgery, with a survival rate of about 75 percent.

Location as well as size is important, however. A tumor often grows against a vital blood vessel, making it difficult to remove safely. Recently, doctors have been using chemotherapy and radiotherapy before surgery to shrink the tumor in certain patients, and studies have found that this approach can greatly improve the outcome.

The more common approach is the use of chemotherapy and immediately following surgical removal of the tumor. Known as adjuvant chemotherapy, this approach has been used effectively for quite some time with breast and colon cancer, and two large studies recently found it effective for lung cancer. Even after complete removal of the tumor, subjects given cisplatin-based chemotherapy had a five percent higher survival rate than patients treated with surgery alone, according to the International Adjuvant Lung Cancer Trial. Several other studies have supported this finding. For patients with NSCLC that has spread to lymph nodes (but no further), one recent study found that adding surgery following chemotherapy and radiation improved survival for carefully selected "medically fit" patients.

Doctors have learned how to target radiation to increase its effectiveness and reduce complications. And new chemotherapy agents have improved the quality of life for many patients and may ultimately point the way toward more effective treatment.

Gefitinib (Iressa), approved for treatment of lung cancer in May of 2003, represents a whole new approach to chemotherapy. Taken in pill form, the drug targets and blocks tyrosine kinase, an enzyme that tumor cells need in order to grow and spread. When this process is disrupted, tumors regress without harm to normal cells. In one recent study, patients with advanced NSCLC taking gefitinib experienced significant reduction of symptoms such as shortness of breath, cough, loss of appetite, chest tightness and weight loss with only minor side effects such as diarrhea and an acne-like skin rash rather than the toxic effects of traditional chemotherapy agents. Early results using gefitinib against untreated cancer found no significant

improvement in survival. A later study, however, found that when the drug was given to selected patients as maintenance therapy following traditional chemotherapy, it kept cancer cells dormant for a period of time, slowing the recurrence of malignancy.

Another treatment that has shown promising results in early studies involves a combination of two very different kinds of agents:

- bevacizumab (Avastin), a monoclonal antibody that works on the outside of a cancer cell to inhibit the growth of new blood vessels (angiogenesis) to nourish a growing tumor, and
- erlotinib (Tarceva), which works inside the cancer cell to block signals that promote cancer growth.

A pilot trial found this combination of drugs safe and more beneficial than expected.

The story is becoming familiar: new treatments are making life considerably better for patients with lung cancer by reducing the number of toxic side effects but they have made little dent in the overall survival rate. In 2005, more than 172,000 Americans will be diagnosed with lung cancer and about 163,000 will die.

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