



GPS-STYLE GUIDANCE HELPS FIGHT LUNG CANCER

According to the American Cancer Society (ACS), there were 219,440 new cases of lung cancer in the United States in 2009. 159,390 (27.4%) of those new cases died. Lung cancer kills more Americans, both men and women, than colon, breast, and prostate cancers combined. The average lifetime chance of developing lung cancer is about one in 13 for men and one in 16 for women. Fortunately, there are exciting new technological developments in the fight against lung cancer.

WHAT CAUSES LUNG CANCER?

Several risk factors warrant discussion. Smoking is by far the leading risk factor, causing nearly nine out of every ten cases of lung cancer. Stopping smoking lowers the risk of developing lung cancer. Non-smokers living with a smoker have about a 20%-30% greater risk of developing lung cancer through secondhand smoke. The ACS lists exposure to asbestos, radon, and some workplace agents as risk factors as well.

Diagnosing lung cancer as quickly as possible is crucial. Early stage lesions are easier to treat. Bronchoscopy is a procedure used to view the inside of the lungs' airways, called bronchi. The airways carry air from the windpipe to the lungs. The bronchoscope has a light and camera at the end for easy viewing and to take pictures. The bronchoscope also has the capability to take tissue samples. The physician will most likely want to take tissue samples of the lesion in attempts to identify the growth. The tissue samples will be sent to the pathologist for a definitive diagnosis of lung cancer. Here lies the problem: if the lesion is very small and in a portion of the lung that the bronchoscopy procedure cannot access, treatment options may be limited or delayed because the lesion could not be identified. And that lost time could mean the difference between life and death.

ENTER PULMONARY NAVIGATION

Pulmonary electromagnetic navigation is precise, GPS-like guidance to lung lesions that historically may have been inaccessible because of the size or location in the lungs. Pulmonary navigation is an adjunct to the bronchoscopy, which is usually done on an outpatient basis. Pulmonary navigation will facilitate the diagnosis of lung disease and lung cancer at earlier stages when it is potentially easier to treat. Pulmonary navigation can also reduce the need for higher risk diagnostic x-ray and surgical procedures such as peripheral lung biopsy.

HOW DOES PULMONARY NAVIGATION WORK?

Prior to the procedure, a CT scan is performed to develop a 3D map, mark the target (lesion) and plan the pathway to the lesion. On the day of the procedure, the patient's lungs are "registered" by lying on three magnets. This facilitates the real-time virtual bronchoscopy. In this virtual world, the physician will advance the catheter traveling down the bronchi and bronchioles as if playing a video game searching out the elusive lesion. Most patients do not have any discomfort or sensation when tissue samples are taken. Once the tissue has been secured and identified as malignant, treatment can begin. After the virtual bronchoscopy, patients may experience some coughing, but it is generally a painless procedure. Patients are discharged in a few hours after the procedure.

Technology continues to improve and advance medicine. Of course, the purpose is to save lives. Doctors should not forget at the reciprocating end of this technology is a patient requiring support, understanding, and encouragement.

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