

Smokers diagnosed with pneumonia found to have higher risk of lung cancer

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Lung cancer is the leading cause of cancer mortality in the United States, with a five-year survival rate of just 17 percent. Smoking causes approximately 85 percent of all lung cancer cases, only 15 percent of which are diagnosed at an early stage. Most efforts to obtain early diagnosis have been unsuccessful, largely due to the highly aggressive nature of the disease.

A new study from Tel Aviv University and Rabin Medical Center researchers proposes that screening [heavy smokers](#) admitted to the hospital with community-acquired [pneumonia](#) could facilitate the [early diagnosis](#) of lung cancer and thereby reduce the incidence of mortality.

Heavy smokers who are diagnosed with pneumonia are one of the highest lung cancer risk groups—and therefore should be considered for early screening by chest-computer tomography.

The research was led by Daniel Shepshelovich, MD, of TAU's Sackler Faculty of Medicine and Rabin Medical Center and was recently published in the *American Journal of Medicine*.

An early warning system

"Lung cancer is truly aggressive," said Dr. Shepshelovich. "The only chance of recuperation is if it's caught before it begins to cause any symptoms at all. The idea is to find the tumor well in advance. Previous studies have shown that a low-dose radiation CT scan conducted once a year on heavy smokers has the potential to lower lung cancer mortality rates. But this requires huge resources, and we still don't know how it will perform in real-world conditions, outside of strictly conducted clinical trials.

"We want to develop a more realistic and cost-effective strategy targeting a particularly high-risk population," he said.

Dr. Shepshelovich and his team examined the files of 381 admissions of heavy smokers with community-acquired pneumonia—a form of pneumonia contracted by a person with little contact with the health care system—at Rabin Medical Center between 2007-2011. They reviewed every patient's medical file for patient demographics, smoking history, lung cancer risk factors and the anatomical location of the pneumonia. The data was then crosschecked with the database at Israel's National Cancer Registry for new diagnoses of cancer.

The researchers found that out of 381 admissions of heavy smokers with pneumonia, 31—9 percent, a figure that surprised the researchers—were

diagnosed with lung cancer within a year of being hospitalized. Lung cancer incidence was found to be significantly higher in patients admitted with upper lobe pneumonia (23.8%). They also found that the lung cancer was located in the lobe affected by pneumonia in 75.8% of cases.

"We discovered that smokers hospitalized with pneumonia are diagnosed with cancer after the infection because often the cancer masquerades as pneumonia, physically obstructing the airway and creating such an infection," said Dr. Shepshelovich. "Considering that only 0.5-1% of smokers without pneumonia have a chance of being diagnosed with lung cancer every year, the fact that 9% of our study group developed lung cancer is alarming."

Extending the lives of cancer patients

"The current diagnostic methods in place—chest X-rays, sputum cytology—sometimes find the cancerous tumors, but they do not change mortality rates," Dr. Shepshelovich said. "In other words, people are aware that they have cancer for longer periods of time, but do not recover. This is not a solution.

"Smokers admitted to the hospital with pneumonia should be considered for chest-computer tomography," he continued. "Only 15 percent of [lung cancer](#) cases are detected at an early stage. We want to increase that number in order to reduce mortality or, at the very least, extend lives."

The researchers are currently considering a larger nationwide retrospective study on the subject.

Provided by Tel Aviv University

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