

PERSONAL HEALTH; The Shock of Lung Cancer, When It Strikes Nonsmokers

By JANE E. BRODY
Published: March 21, 2006

Dr. David A. Karnofsky was a brilliant oncologist working hard at Memorial Sloan-Kettering Cancer Center to provide the best possible therapies for cancer patients. My mother, who died of ovarian cancer in 1958, was one of them. And while he could not save her, we were ever so grateful for the caring way he treated her.

Then, in 1969, Dr. Karnofsky, a 55-year-old nonsmoker, died of lung cancer, caused perhaps by his work with nitrogen mustard in World War II. Now another very caring American, Dana Reeve, also a nonsmoker, has been taken by the same disease. She was only 44 and had devoted 9 of her last 10 years to aiding her paralyzed husband, Christopher Reeve, and raising awareness and support for victims of spinal cord injuries like the one he suffered in a horseback-riding accident.

It's Not Just Smoking

Although lung cancer is inextricably linked to smoking in the public mind (and in the minds of most doctors), each year tens of thousands of people who never smoked get this challenging cancer. They are often the subject of much head shaking. What could have caused their cancer?

Why, for example, did Ms. Reeve get lung cancer? Could it have been the stress associated with her husband's accident? Could it have been her exposure years earlier to secondhand smoke in nightclubs where she once performed? Could it have been an errant gene that suddenly allowed lung cells to run amok?

"Lung cancer is so closely linked up with smoking that doctors and the public are surprised when it turns up in nonsmokers," said Dr. Peter B. Bach, pulmonologist and epidemiologist at Sloan-Kettering in New York. "But they shouldn't be surprised. There are about 180,000 cases of lung cancer a year and 150,000 deaths. If 80 percent or so stem from smoking, that leaves about 36,000 cases and 30,000 deaths a year that are not related to smoking.

"That puts non-smoking-related lung cancer in the same league with colorectal, prostate and breast cancer. If we wiped out smoking, lung cancer would still be the No. 3 cancer killer of Americans."

But factors other than smoking that are known to raise lung cancer risk. Following are some of them.

SECONDHAND SMOKE -- Chronic exposure to secondary smoke in the home or workplace can raise the risk by 20 to 30 percent. Recent bans on smoking on the job, in public buildings and in people's homes are expected to reduce this cause.

EXPOSURE TO ASBESTOS -- Exposed workers are seven times as likely to die of lung cancer, and those who smoke face a risk of developing lung cancer that is 50 to 90 times as great as that in people in general. Asbestos harms when it is released into the air people breathe, usually as a result of deterioration, demolition or renovation of buildings.

INDOOR RADON -- Homes built over soil with natural uranium deposits can accumulate high levels of radon indoors, doubling or tripling the lung cancer risk of longtime residents.

OTHER WORKPLACE CARCINOGENS -- These include radioactive ores like uranium; inhaled chemicals like vinyl chloride, beryllium, mustard gas, nickel chromates, arsenic and chloromethyl ethers; fuels like gasoline; and diesel exhaust.

SCARRED AND IRRADIATED LUNGS -- People with repeated lung infections -- bronchitis and pneumonia -- have an elevated risk, as do those treated with chest radiation for cancers like Hodgkin's disease and regionally spread breast cancer.

AIR POLLUTION -- The risk may rise slightly among susceptible people living in cities with a serious pollution problem.

POOR DIET -- Though the evidence is far from definitive, a diet deficient in fruits and vegetables may raise the risk of lung cancer.

GENETICS -- The role that genetics plays in lung cancer risk is expected to grow as scientists continue to unravel genetic factors involved in cancer development. For lung cancer in nonsmokers, there is an increased likelihood of finding an abnormal version of the epidermal growth factor receptor (EGFR) protein. People with a strong family history of lung cancer

may share a genetic susceptibility and can develop the disease even if they smoke only a little or not at all.

While women account for an increasing proportion of lung cancers in people who, like Ms. Reeve, never smoked, this statistic may reflect the fact that historically there are more women nonsmokers, not that women are at greater risk, Dr. Bach explained.

But, according to Dr. Jeffrey Port, thoracic surgeon at NewYork-Presbyterian/Weill Cornell hospital, a gender factor may be involved; receptors for estrogen have been found on lung cancer cells that could make women more susceptible than men to environmental insults.

Detection and Treatment

Ms. Reeve's fate was sealed almost from the moment of diagnosis. Although she had had a persistent cough for a year before her cancer was found, by the time lung cancer causes symptoms, it is usually too far advanced to cure. While there has been some progress in treating even advanced lung cancer, the main hope for long-term survival now lies in detection while the cancer is still small and confined to the lung in which it arose.

Lung cancer is likely to be the last thing people with symptoms like a persistent cough or shortness of breath think of if they have never smoked or lived with smokers. Even doctors tend not to suspect this disease in a nonsmoker.