

TerranearPMC Safety Share

Week of August 3, 2015 – Lung Cancer and Non-Smokers

Rebecca Falzano lived in New York City for years; and every morning, she woke up wheezing, trying to catch her breath. Her doctor told her she had asthma, but no inhaler fixed her difficult breathing. She thought she would get better if she moved to Maine; the home of the Breathe Easy Coalition. Unfortunately her symptoms got worse and finally, her doctor recommended a CT scan. When she received the results, she was devastated: There was a tumor on her lung.

At the time Rebecca was 28 years old. She was an active person and, **was a nonsmoker**. Like so many of us, her understanding of lung cancer was that this was a smoker's disease. While smokers represent the group with the greatest risk of developing lung cancer, smoking does not account for all lung cancer cases. Unfortunately for many that have decided to maintain a healthy life style and abstain from smoking, it is not that uncommon for non-smokers to contract this disease. The alarming fact is that Rebecca is among one in five women with lung cancer and has never smoked. That means 20% of women that contract lung cancer do not smoke! According to the Centers for Disease Control and Prevention In 1987, lung cancer surpassed breast cancer to become the leading cause of cancer deaths in women. And while the number of deaths in men due to lung cancer seems to have reached a plateau, the number is still rising among women.

Each year, more than 28,000 people who have never smoked will die of lung cancer, as the medical community recognizes a number factors (aside from smoking), that represent a predisposition towards developing this disease.

While for many years the pathology for nonsmokers to develop lung cancer remained a mystery, the International Agency for Research on Cancer (or IARC), a branch of the World Health Organization, has recognized that our current air quality is a leading cause of lung cancer. There is no 100% indicator to predict who will and who will not get lung cancer. However, considerable guesswork can be taken out of the equation by understanding the triggers and recognizing important signs of precursor activities and events. This includes a number of conditions and circumstances have been identified that will increase a non-smoker's chance of developing lung cancer.

Passive smoking (aka second-hand smoke), or the inhalation of tobacco smoke from other smokers sharing living or working quarters, is an established risk factor for the development of lung cancer. Non-smokers who reside with a smoker have a 24% increase in risk for developing lung cancer when compared with other non-smokers. Each year, up to 3,000 lung cancer deaths are estimated to occur in the U.S. that is attributable to passive smoking.

Radon gas is a naturally-occurring gas that forms within the uranium decay process (its direct "parent" is radium), and is a known cause of lung cancer. An estimated 12% of total lung cancer deaths in both smokers and non-smokers, or 15,000 to 22,000 lung cancer-related deaths annually in the U.S, are believed to be at least partially related to radon gas exposure. Smokers who are exposed to radon have an even greater risk of developing lung cancer than non-smokers who are exposed to radon gas (often used as an example of synergistic effects of two



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contaminants that target the same biologic system). Radon gas can travel up through soil and enter homes through gaps in the foundation, pipes, drains, or other openings. The U.S. Environmental Protection Agency estimates that one out of every 15 homes in the U.S. contains dangerous levels of radon gas. Radon gas is invisible and odorless but can be detected with simple test kits.

Asbestos is a compound that was widely used in the past as both thermal and acoustic insulation material. Microscopic fibers of asbestos break loose from the insulation material and get released into the air where they can be inhaled into the lungs. Asbestos fibers can persist for a lifetime in lung tissue following exposure to asbestos. Both lung cancer and a type of cancer known as mesothelioma are associated with exposure to asbestos. Cigarette smoking drastically increases the chance of developing an asbestos-related lung cancer among workers exposed to asbestos (another synergistic effect); nevertheless, asbestos workers who do not smoke have a fivefold greater risk of developing lung cancer than other non-smokers. Today, asbestos use is limited or banned in many countries including the United States. However, similar to radon, asbestos is naturally occurring. It is even listed as the state rock of California (the specific form known as serpentine).

Heredity: Individual genetic susceptibility has been identified as playing an influential role in the causation of lung cancer. Numerous studies have confirmed that lung cancer is likely to occur in both smoking and non-smoking relatives of those who have had lung cancer than in the general population. In addition, recent studies are showing that young people and non-smokers with lung cancer commonly have mutations in a gene called EGFR. New treatments are indicating highly effective results.

Air pollution from vehicles, industry, and power plants, can raise the likelihood of developing lung cancer in exposed individuals. It has been estimated that up to 2,000 lung cancer deaths per year may be attributable to breathing polluted air, and many experts believe that prolonged exposure to highly polluted air can carry a risk for the development of lung cancer similar to that of passive smoking. In addition, the science community has acknowledged that the World – including the US – is experiencing a dramatic increase in asthma; a major respiratory ailment. Thus, our air quality is playing a significant factor for the increased cause in this illness. Quite possibly, with a weakened respiratory system, persons may be more susceptible to the precursor conditions that have been recognized to be associated with cancer.

While there are many things in this world for which we, as individuals, do not have control over, when we do have the ability to manage known lung cancer precursors, we should seriously take a proactive stance and avoid using or coming into contact with such elements. Of course this is no guarantee of contracting a serious disease, but it is important that we can influence our health in a positive way.

Man is the only kind of varmint sets his own trap, baits it, then steps in it

John Steinbeck

