

# Increasing number of women diagnosed with lung cancer

By San Diego Union-Tribune

Historically, lung cancer has been viewed as a disease of men. Over the past 50 years, however, there has been a dramatic increase in the incidence of lung cancer in women – even as lung cancer rates in men have declined.

Lung cancer is now the most common cause of cancer death in American women, accounting for more than one-quarter of all cancer deaths. In 2010, there were 105,770 new cases of lung cancer in women, with more than 71,080 deaths – more than breast, uterine and ovarian cancer deaths combined.

The rise in female lung cancer incidence has long been attributed to more women using tobacco, but 20 percent of women who develop lung cancer have never smoked. In the United States, 15 percent to 20 percent of lung cancers occur in people who have never smoked, but interestingly, 70 percent to 80 percent of “never-smokers” with lung cancer are women.

We asked Patricia Thistlethwaite, a cardiothoracic surgeon at the UC San Diego and the first female program director of thoracic surgery in the nation, to shed more light on what the U.S. Surgeon General’s office has called a “contemporary epidemic.”

**Q:** Does anything explain the rise in cases of lung cancer in women, but not men?

**A:** Several factors may be contributing to the increased prevalence.

First, before 1940 few women in the United States smoked, but the integration of women into the workplace during World War

II led to an increase in tobacco consumption. The prevalence of smoking in American women peaked in 1965 at 33 percent and remains at 22 percent today. In contrast, more than half of American men smoked before 1965, but the prevalence has decreased to 23 percent today. Thus, over time, there has been a more marked decrease in smoking in men compared to women.

Second, there has been a significant increase in two types of lung cancer in women: bronchoalveolar carcinoma and adenocarcinoma, which has not been seen in the male population in this country. Both of these types of lung cancer occur in younger, nonsmoking individuals, particularly women. The cause for the huge increase is not known and is being studied.

Third, there are important molecular differences in lung cancers that are suspected to be responsible for increased susceptibility in women. Women exhibit decreased DNA repair capability and increased mutations in specific cancer genes such as p53, epidermal growth factor receptor (EGFR), and K-ras. Mutations in these genes are found at a much higher frequency in adenocarcinomas, particularly in women.

Finally, one of the most obvious biologic differences between men and women is hormonal and related to estrogen, a recognized factor in the development of other types of cancer. The role of estrogen and synthetic estrogens in lung cancer in women is under investigation and somewhat controversial. Estrogens have been shown to stimulate growth of lung cancer cells in tissue culture, yet clinical studies suggest that estrogen-progesterone supplementation probably promotes lung cancer rather than just estrogen alone.

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