Lung Cancer and Tobacco

What Is New?

Stella Aguinaga Bialous, MSN, RN, DrPH[a,*], Linda Sarna, PhD, RN[b]

KEYWORDS

• Lung cancer • Tobacco • Smoking status • Smoking cessation • Addiction
• Relapse nursing intervention

KEY POINTS

- Lung cancer is the leading cause of cancer death worldwide.
- Tobacco use is the single most important preventable cause of cancer.
- Implementation of tobacco control measures, including preventing initiation and treating dependence, are pivotal to address the lung cancer epidemic.
- Tobacco dependence treatment improves lung cancer treatment outcomes and increases overall survival.
- All nurses need to ensure that patients with a diagnosis of lung cancer who use tobacco receive tobacco dependence treatment and support to quit.

INTRODUCTION

One of the key developments in lung cancer treatment is the accumulation of compelling evidence on the positive impact of quitting tobacco use at any point along the lung cancer care continuum, from prevention to screening and from treatment to palliative care. Nurses can play a pivotal role by ensuring that tobacco dependence is included in minimal, basic care. Nurses can also support system changes that facilitate access to tobacco dependence treatment to all patients with lung cancer. This article reviews the role of tobacco use in causing lung cancer and the implementation of tobacco-control policies and tobacco dependence treatment as key strategies to address the lung cancer epidemic.

BACKGROUND

Lung cancer is the leading cause of cancer death globally, responsible for an estimated 1.59 million deaths a year.[1] Lung cancer is the most common cancer with an estimated

[a] School of Nursing, University of California San Francisco, 3333 California Street, Suite 340, San Francisco, CA 94118, USA; [b] School of Nursing, University of California, Los Angeles, 2-256 Factor, 700 Tiverton Avenue, Los Angeles, CA 90095, USA
* Corresponding author.
E-mail address: stella.bialous@ucsf.edu

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1.8 million new cases a year, 58% in low- and middle-income countries (LMIC).[2] Lung cancer is more common in men than women following the pattern of tobacco use in men and women, and between women in high-income countries (HIC), where lung cancer rates are high, and women in LMIC, where lung cancer cases are inreasing.[2] In the United States, lung cancer deaths surpassed breast cancer deaths, and it is the most common cause of cancer death among women but breast cancer cases are still higher.[3]

Lung cancer has been labeled a global epidemic after the mass production and marketing of cigarettes, as it was considered a rare disease 100 years ago.[4] Although the number of lung cancer cases remains higher among HIC when compared with LMIC, there is an increase in incidence in LMIC that parallels the increase in tobacco use in these countries.[5] One way to measure the burden of lung cancer is to assess the disability-adjusted life year (DALY). A DALY represent the years of life lost due to disease, disability, or premature death. The Council on Foreign Relations estimated a 100% to 200% increase in lung cancer–related DALYs in several LMIC, mostly in South and Southeast Asia and sub-Saharan Africa.[6]

There are several types of lung cancer, with the most common (85%) being non–small cell lung cancer. Advances in genetic mapping of these tumors are providing new avenues to better understand the cause of lung cancer and informing the development of targeted therapies that have promising results in improving overall survival rates of patients with lung cancer.[7–9]

Treatment and survival improvements were aided by improvement in screening strategies that permit detection in earlier stages of the disease.[10,11] The benefits of screening are amplified when combined with tobacco dependence treatment.[12,13] It is recommended that tobacco dependence treatment be provided to all smokers undergoing screening, regardless of screening results.[14]

Despite this progress, the 5-year survival rates for lung cancer remain low. It is estimated to be approximately 18% in the United States.[15] Access to screening and treatment is nonexistent for large segments of the population in HIC, especially those with low literacy, low access to health care, and low income, and for most people in LMIC. Thus, reducing tobacco use through prevention and cessation remains a major approach for reducing the global burden of lung cancer.

TOBACCO AND CANCER

Tobacco causes 16 types of cancer (**Box 1**); 30% of all cancer deaths, globally, are due to tobacco. Thus, tobacco use is the largest preventable cause of cancer. Cigarettes contain more than 60 substances that are known to be carcinogenic in humans. Tobacco use damages the p53 gene, being responsible for p53 mutations in lung cancer.[16] It is important to note that in addition to cancer, tobacco causes diseases in almost every organ of the body, particularly in the cardiovascular and respiratory systems.[17]

The causal link between smoking and lung cancer was established by the Doll and Hill seminal study of British male doctors published in 1954[4] and became widely known with the publication of the 1964 US Surgeon General Report “Smoking and Health.”[17] The body of research confirming the link between tobacco and lung cancer continued to grow in subsequent decades. Tobacco companies knew about this link, through their own research, but decided to publicly question the validity of these scientific findings, funding additional research and launching a public relations campaign to allay consumers’ fears related to tobacco use and lung cancer.[4]

A part of the tobacco industry campaign to reassure the public about smoking and health concerns was the launch of light and mild cigarettes, as well as filters,