



# CAP Lung Cancer Medical Writers' Circle

## **Smoking Cessation: An Integral Part of Lung Cancer Treatment**

Janine Cataldo, PhD, RN

Lung cancer is the leading cause of cancer deaths in the United States.[1] Two or three out of every 100 men and 1 or 2 out of every 100 women, who are now 60 years old, will get lung cancer sometime during the next 10 years.[1] Cigarette smoking is responsible for an estimated 90% of all lung cancers.[2] Up to 83% of all smokers continue to smoke after a diagnosis of lung cancer.[3, 4, 5] A recent study suggests that people who continue to smoke after a diagnosis of early stage lung cancer, almost double their risk of dying.[6]

In the past, smoking cessation has not been considered an integral part of the treatment of cancer but, with improved cancer treatments and survival rates, smoking cessation among cancer patients has become increasingly important.[7] This article will report on the benefits of smoking cessation for lung cancer patients and the elements of effective smoking cessation treatment, with consideration of tailoring to the needs of lung cancer patients.

### **Benefits of smoking cessation for lung cancer patients**

Smoking cessation for lung cancer patients yields both immediate and long-term benefits. The immediate benefits of cessation include improved oxygenation, lowered blood pressure, improved smell, taste, circulation and breathing, increased energy and improved immune response.[8] Smoking cessation is also associated with improved cognitive function,

psychological well-being, and self-esteem.[9, 10] Lung cancer patients report after successful smoking cessation all of the same benefits plus, decreased fatigue and shortness of breath, increased activity level, improved performance status, appetite, sleep, and mood.[9, 11, 12] In addition, there are significant positive effects of smoking cessation on the health of lung cancer patients: decreased risk of disease, increased survival time, decreased post operative complications, increased efficacy of chemotherapy, decreased radiation therapy complications, and improved Quality of Life.

Although the benefits of cessation are extensive, they are not generally known to lung cancer patients and their clinicians. The specific benefits of smoking cessation (both immediate and long-term) that relates to lung cancer symptom distress needs to be incorporated into smoking cessation interventions.

### **Tobacco Dependence Treatment**

Given the critical negative health effects of smoking on lung cancer survival and the major health benefits of smoking cessation, it is important that cancer care providers adopt the role of tobacco cessation treatment providers. In addition to counseling, all smokers attempting cessation should receive pharmacotherapy.[15] First-line, FDA-approved, medications for smoking cessation include nicotine replacement therapies (NRT), bupropion sustained release (SR), and varenicline (Chantix). Nicotine Replacement Therapy. NRT is based on the principle that nicotine is the dependence-producing constituent of cigarette smoking and that smoking cessation can be achieved by replacing nicotine without the toxins in cigarette smoke.[16] The goal is to relieve the symptoms of withdrawal, which allows the patient to focus on conditioning factors when attempting to stop smoking. NRT products are currently available over the counter and are the first-line medication choice of many smokers attempting to quit on their own. Because NRT has been deemed safe and effective and major side effects are very rare, they should be recommended to all smokers including cancer patients, except

for those few for whom they are medically contraindicated. These include patients with underlying cardiovascular disease: recent myocardial infarctions, life-threatening arrhythmias, and severe angina. NRT is not recommended for smokeless tobacco users or individuals smoking fewer than 10 cigarettes per day.[14] Bupropion (SR). Sustained Release Bupropion is a norepinephrine and dopamine re-uptake blocker and is also commonly used as an antidepressant. The clinical effects are a decreased craving for cigarettes and symptoms of nicotine withdrawal. [14] Varenicline (Chantix). Varenicline is a partial nicotinic agonist, it binds to the nicotinic receptors, thereby, preventing nicotine binding. The partial agonist activity induces receptor stimulation and reduces withdrawal symptoms during cessation. Varenicline blocks dopaminergic stimulation responsible for reinforcement and reward associated with smoking. [17] This action reduces the craving for cigarettes. The effectiveness of varenicline in smoking cessation was demonstrated in six clinical trials. There have been case reports of neuropsychiatric symptoms (behavior changes, agitation, depressed mood, suicidal ideation or behavior) and reports of worsening of pre-existing psychiatric illness. These reports are rare in comparison to the total number of patients using the medication.[18] Clinicians need to closely monitor for neuropsychiatric symptoms while patients are using varenicline and bupropion as smoking cessation aids. [19]

### **Treatment Factors Specific to Treating Smokers with Lung Cancer**

Only three smoking cessation intervention studies have been conducted with diagnosed lung cancer patients.[13, 20, 21] None of the interventions studied in the literature met the U.S. Public Health Service Guidelines recommendation for a combination of both behavioral and pharmacologic treatment.[14]

There are several additional features based on the 2008 guidelines for smoking cessation [14] to consider when treating tobacco dependence in patients with lung cancer.

- *Motivation*. Improving one's health may not be the most appropriate motivational factor, however, providing information about the short term and long term benefits of smoking cessation

during lung cancer treatment is essential. Evidence suggests that the majority of lung cancer patients are motivated to stop smoking. [13]

- *Stigma and Self-blame.* Anecdotal evidence suggests that stigma is an important factor in the care of lung cancer patients. [22] Whether they smoked or not, lung cancer patients reported stigmatization from clinicians, as well as family members and friends, because the disease is strongly associated with smoking.[22] Smokers have become a marginalized part of society. [23] Current and former smokers have identified several factors that contribute to perceptions of LCS including: perceptions of smoking as a choice not an addiction; discrimination perpetrated against smokers through no smoking policies, and perceptions that smokers are less educated. [23] Recently, with the development of the lung cancer stigma scale, there is empirical evidence that lung cancer patients experience significant levels of perceived stigma whether or not they were current or past smokers. Stigma had a strong significant correlation with increased depression and diminished quality of life. [24, 25] Education about coping strategies to deal with self-blame and stigma needs to be incorporated into the smoking cessation intervention.
- *Mood Management.* As a result of a lung cancer diagnosis, patients often experience increased psychological distress, increased feelings of burden, stress, and stigmatization.[26-29] Lung cancer patients experience more psychological distress than other cancer patients, making mood management an essential aspect of treatment. Clinicians should evaluate and treat the patient for mood disorders and assist patients in the identification of effective coping strategies. Coping strategies are an essential part of smoking cessation for lung cancer patients.
- *Smoke-free Homes.* Considerable evidence suggests that having a smoke free home may be associated with increased successful quitting.[30-32] Smokers who adopt a smoke-free home are almost five times more likely to be quit for  $\geq 90$ .[32]
- *Social Support.* Low perceived social support has been found to predict smoking relapse.[33-35] Research suggests that partner involvement in smoking cessation may

encourage long-term abstinence. Park, in 2004,[36] found that interventions to enhance partner support showed the most promise when implemented with live-in, married, and equivalent to married partners. They concluded that such interventions should focus on enhancing supportive behaviors, while minimizing behaviors critical of smoking. A strong predictor of relapse is having another smoker in the home.[32] Lung cancer patients often live with a smoker, treating a dyad or more than one smoker in a home may increase the chances of smoking abstinence success.

## **Conclusion**

The lung cancer experience is unique in many ways (with issues of self-blame and stigma, anticipated short survival time and increased symptom burden and distress), the lung cancer patient who smokes is highly dependent on tobacco while faced with an urgent life crisis; research is needed to develop effective and tailored smoking cessation interventions. Given the prevalence of lung cancer patients who smoke and the significant benefits of smoking cessation, cancer care providers need to offer full support and tobacco dependence treatment that is tailored to patients' specific needs. Intensive and extended tobacco cessation programs, including counseling with behavioral therapy, the use of nicotine replacement and combined pharmacology with extended follow-up are highly efficacious, cost-effective, and a critical component of quality lung cancer care.

*Janine Cataldo, PhD, RN, as Assistant Professor, Department of Physiological Nursing at the University of California, San Francisco. Janine also joined the Hartford Center of Geriatric Nursing Excellence (HCGNE) as Associate Director in September. Dr. Cataldo received her BSN from the University of Kentucky, Lexington, her MSN from the University of Cincinnati, and her PhD in Nursing Research and Theory from New York University. She pursued a Fellowship in rehabilitation psychology and geriatric psychiatry at the Rusk Rehabilitation Institute, and post-doctoral studies in psychosocial oncology in older adults at the University of Pennsylvania. With her specialization in geriatric psychiatry and significant research and educational interests in health policy, smoking, depression, chronic disease and disability discrimination, Dr. Cataldo brings a wealth of important resources to enhance the education of nursing students interested in the care of older adults.*

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