

**WARNING: THIS PRODUCT IS NOT
A SAFE ALTERNATIVE
TO CIGARETTES**

Smokeless Tobacco and Head and Neck Cancer: There is Risk Even Without Fire

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Abstract:

The use of smokeless tobacco (primarily moist chewing tobacco) is currently on the rise in the USA. Smokeless tobacco contains many carcinogens. Multiple large-scale epidemiologic studies have been completed to evaluate the risk of cancer associated with use of smokeless tobacco. This article will review the current knowledge of the mechanisms of carcinogenesis and the relative risk these products impart to the users.

Use of Smokeless Tobacco

Historically, chewing tobacco was the primary use of tobacco products until the development of the cigarette in the early 1900s. While the use of cigarettes has declined over the last two decades, use of chewing tobacco has had a three-fold increase from 1980-2003.¹ In 2000, 4.4 percent of men and 0.3 percent of women regularly used snuff in the USA. Use is most common in young men, Southern states and rural areas. Aggressive advertising campaigns are now common-

place in sporting magazines and at tobacco stands. The change in marketing now strictly favors snuff over cigarettes.

Smokeless Tobacco Carcinogens

Even without smoking, tobacco contains and can release about 30 known carcinogens. Although the exact agent that causes cancer in snuff is not known, the prime offenders are probably nitrosamines. Snuff use entails an exposure to these compounds about 100-1,000 times greater than in a normal diet.² When experimental rats receive a similar

amount of nitrosamine, oral cavity tumors are induced.³ These active carcinogens cause mutations in the cellular DNA, and the accumulation of these mutations over time lead to cancer by altering cellular pathways that control growth and migration.

Non-cancerous Disease Associated with Smokeless Tobacco

The risk for cancer development will be discussed further below. However, there are other non-cancer risks associated with snuff use. The use of these products over time leads to the development of precancerous changes at the site of use. "Snuff dipper's lesion," or an area of leukoplakia, develops in nearly all users. Because these lesions cannot be differentiated from early cancers by inspection, they need to be biopsied and examined pathologically. This leads to an increase in health cost and patient morbidity. Although it does not increase the risk of heart disease like cigarettes, other non-cancer risks are elevated such as gingival recession and dental caries.

Cancer Risks Related to Smokeless Tobacco

Many users feel that snuff use is a safe alternative to cigarette use. However, multiple large epidemiologic studies have found an increased risk of three types of cancer in people who use smokeless tobacco. These cancer sites include the oral cavity, esophagus and pancreas. A meta-analysis has shown that oral cavity cancers occur about twice as frequently in smokeless tobacco users, with an average relative risk of 1.8.⁴ This use accounts for about 1,000 new cases of oral cancer in the United States per year. Pancreatic and esophageal cancers both have a relative risk of 1.6 when examined in multiple epidemiologic studies. Although the risk of pancreatic and esophageal cancer is lower, the mortality and morbidity associated with these cancer types is worse compared to the oral cavity cancers. Increased risk is associated with longer duration and amount of smokeless tobacco used. Therefore, cessation and limiting use should be encouraged.

Physician's Role to Help

The primary role of the physician is to understand, educate and help those people addicted to these substances. There are multiple ways to help, first by identifying those at risk. Most of these patients from South Dakota will be young males. Realize that at least 5 percent of these patients will use smokeless tobacco. Educate patients about the risk. Encourage and offer treatments that will lead to cessation.

In patients who continue to use smokeless tobacco, routine examination of the oral cavity mucosa should be completed. If a lesion is detected, it warrants an evaluation by an

otolaryngologist who specializes in the treatment of head and neck cancer. Also, signs of esophageal and pancreatic cancer (i.e., dysphagia and abdominal pain) should be evaluated with appropriate tests and referrals considered to rule out these cancers.

In summary, the use of smokeless tobacco is not uncommon and steadily increasing in our patients. This increased use will be followed by an increase in smokeless tobacco-associated cancer and disease. Knowing the smokeless tobacco-associated cancers will aid in screening, diagnosis and treating those currently at risk. Preventing use will ebb the tide of these diseases.

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