

# Smoking during radiation treatments reduces chance of overall survival

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Smokers who continue to smoke while undergoing radiation treatments for head and neck cancer fare significantly worse than those who quit smoking before therapy, according to a study in the February issue of the *International Journal of Radiation Oncology•Biology•Physics*, an official journal of the American Society for Radiation Oncology (ASTRO).

Although the association between tobacco smoking and head and neck cancers has long been established, there had been little data until now showing whether continued smoking during treatment affects prognosis.

"I've always told patients, 'You should really stop smoking,' but I had no tangible evidence to use to convince them that they would be worse off if they continued to smoke," Allen Chen, M.D., lead author of the study and residency training program director at the University of California, Davis, School of Medicine in Sacramento, Calif., said. "I wanted concrete data to see if smoking was detrimental in terms of curability, overall survival and tolerability of treatment. We showed continued smoking contributed to negative outcomes with regard to all of those."

Chen and colleagues reviewed medical records of 101 patients with newly diagnosed squamous cell carcinoma of the head and neck who continued to smoke during radiation therapy and matched those patients to others who had quit prior to starting radiation therapy for their head and neck cancers. Matching was based on primary disease site, gender, smoking duration, stage of disease, radiation dose, other treatment

(surgery and chemotherapy) and date of initiation of radiation therapy.

The researchers found that 55 percent of patients who had quit smoking prior to treatment were still alive five years later, compared with 23 percent of those who continued to smoke. The poorer outcomes for persistent smokers were reported for both patients who had surgery prior to radiation therapy and patients who had radiation alone. Similarly, Chen and his colleagues found that 53 of the patients who still smoked experienced disease recurrence, compared to 40 patients in the control group. Active smokers also experienced more complications of treatment, such as scar tissue development, hoarseness and difficulties with food intake.

Chen said additional research will be needed to explain these differences in outcomes for patients with head and neck cancers. One theory suggests that smoking deprives the body of much needed oxygen.

"Radiation therapy requires oxygenation for the production of free radicals, which attack cancer cells," he said.

He also emphasized that their findings are based on an observational study, which does not establish a cause-effect relationship between smoking during radiation therapy and poorer outcomes. For instance, they were unable to determine with certainty the actual cause of death of each patient, and active [smokers](#) may be at higher risk of death from other medical problems such as heart disease, stroke and diabetes.

"Patients unable to quit may also have non-cancer-related medical and psychosocial problems that could possible contribute to inferior survival," Chen said.

"Those who continue to smoke even after a diagnosis of [head and neck cancer](#) are likely to be at higher risk for alcohol abuse, have less social

support and have lifestyles associated with high-risk health behaviors. A diagnosis of cancer is emotionally devastating, and a lot of patients are reluctant to entertain the idea of [smoking](#) cessation. Many patients can't or won't connect the dots, and unfortunately, our data is showing that by continuing to smoke, they are more likely to gamble away the possibility of cure."

Provided by American Society for Radiation Oncology

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