Brief Report

Association Between Tobacco Use, Symptom Expression, and Alcohol and Illicit Drug Use in Advanced Cancer Patients

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Abstract

Context. Limited knowledge exists examining the association between smoking status, symptom expression, and alcohol or illicit drug use.

Objectives. The goal of this study was to clarify these associations in patients with advanced cancer.

Methods. We retrospectively reviewed 560 charts and identified 300 consecutive advanced cancer patients who completed a comprehensive smoking questionnaire. Data including the Edmonton Symptom Assessment System, Cut down/Annoyed/ Guilty/Eye opener (CAGE) alcoholism screening questionnaire, illicit drug use history, and daily opioid requirements—morphine equivalent daily dose—were collected.

Results. Among 300 patients, 119 (40%) were never smokers, 148 (49%) former smokers, and 33 (11%) current smokers. The most common malignancies were gastrointestinal (28%) and lung (20%). Current smokers were more likely to be single ($P < 0.01$) and significantly younger than former smokers ($P < 0.001$) but did not differ in age from never smokers. Never smokers were more likely to be female ($P < 0.001$). Current smokers reported significantly higher pain expression than former and never smokers (median 7 vs. 5.5 vs. 5, respectively, $P = 0.02$), higher CAGE positivity (42% vs. 21% vs. 3%, $P < 0.001$) and were more likely to have a history of illicit drug use (33% vs. 16% vs. 3%, $P < 0.001$). The morphine equivalent daily dose was not significantly different according to smoking status.

Conclusion. In advanced cancer, patients who were former or current smokers were significantly more likely to have a history of CAGE positivity and illicit drug use compared with never smokers. Current smokers expressed significantly higher pain. A smoking history may be a marker of an increased risk of opioid misuse.   J Pain Symptom Manage 2016;51:762−768. Published by Elsevier Inc. on behalf of American Academy of Hospice and Palliative Medicine.

Key Words
Advanced cancer, tobacco use, chemical coping, cancer pain, symptom, opioid, alcoholism

Introduction

In the U.S. in 2011, the prevalence of smoking tobacco in the adult population was 19%.[1] The frequency of patients who were actively using cigarettes at the time of diagnosis was reported to be between 46% and 75%, whereas the frequency of active cigarette use after their diagnosis was between 14% and 58%.[2] In a more recent study, the frequency of patients who were actively smoking was 11.3% in lung malignancies and 11.9% in colorectal cancer,[3] and a frequency of 19.3% in cancer patients seen in a chronic pain clinic.[4]

In population-based studies, smokers generally express more intense, widespread pain compared

with nonsmokers.[5–7] In chronic pain patients, tobacco users were noted to require opioids more frequently.[8–11] In the postoperative setting, several studies have reported that smokers require morphine at an increased frequency and higher doses.[12–14] Preliminary studies reported that persistent smoking after a diagnosis of cancer was associated with greater pain severity and limited overall physical function.[15–17]

The association between symptom burden, opioid use, and smoking status in patients with advanced cancer has not been well characterized. The aims of this retrospective study were to determine the association between smoking status and symptom expression, history of alcohol and illicit drug use, and opioid requirements in advanced cancer patients referred to an outpatient Supportive Care Clinic (SCC). We also examined the relationship between smoking status and timing of palliative care referral. We hypothesized that patients with advanced cancer who have a history of smoking will have a higher symptom expression, higher frequency of positive scores on the Cut down/Annoyed/Guilty/Eye opener (CAGE) screening questionnaire, increased history of illicit drug use, higher frequency and dose of opioid therapy, and earlier referral to palliative care.

Methods

Patients

We retrospectively screened 560 consecutive cancer patients evaluated on consultation at an outpatient SCC during the year 2013. Patients were eligible if they completed a comprehensive smoking questionnaire, had a diagnosis of advanced cancer, and were aged 18 years or older. We defined advanced cancer as locally advanced, metastatic, or locally recurrent disease for solid tumors, and as primary progressive or relapsed/refractory disease for hematologic malignancies. Locally advanced cancer patients who received curative surgery or definitive chemoradiation were excluded. A total of 300 patients met the eligibility criteria (Fig. 1). The institutional review board

560 consecutive patients who visited Supportive Care Center for the first time

Excluded
• NED after a curative surgery or definitive chemoradiation (N=87)
• Smoking questionnaire missing (N=90)
• Incomplete smoking questionnaire (N=76)
• History of other tobacco use and no history of cigarette smoking (N=7)

300 Eligible patients

Fig. 1. CONSORT diagram.

at the University of Texas M. D. Anderson Cancer Center (UTMDACC) approved this study and waived informed consent.

Data Collection

We collected baseline demographics including age, gender, ethnicity, and marital status from the electronic medical records. Data from the institutional smoking questionnaire completed on initial consultation, the Edmonton Symptom Assessment System (ESAS), and the CAGE questionnaire were retrieved.

The cigarette smoking questionnaire was developed from the Behavioral Risk Factor Surveillance System by the U.S. Center for Disease Control and Prevention.[18] Patients were grouped into current, former, or never smokers. Patients who reported smoking at least 100 cigarettes in their lifetime and who, at the time of the survey, did not smoke were defined as "former smokers." Patients who reported never having smoked 100 cigarettes were classified as "never smokers," and "current smokers" were patients who were actively smoking at the time of assessment. Age of onset of smoking tobacco and quitting, number of cigarettes smoked per day, and the use of other types of tobacco products such as chewing tobacco, snuff or dip, pipes, cigars, or electronic cigarettes were queried.

The ESAS determines the severity of 10 symptoms (pain, fatigue, nausea, depression, anxiety, drowsiness, dyspnea, anorexia, feeling of well-being, insomnia) rated by a numerical scale (0, no symptoms; 10, worst possible symptoms).[19] The symptom distress score was defined as the sum of the scores of nine items, excluding insomnia.[20,21]

The CAGE questionnaire is a four-item validated tool that is used to screen for a history of alcoholism.[22] A score ≥ 2 was considered positive and has been reported to be more than 85% sensitive and 90% specific for the diagnosis of alcohol abuse and/or dependence.[23]

We also collected data on the primary cancer type including date of advanced cancer diagnosis, first presentation to UTMDACC, death or last follow-up, survival status, morphine equivalent daily dose (MEDD) at the time of referral and first follow-up appointment in the SCC, history of illicit drug use, and use of sedatives, hypnotics, and/or anxiolytics.

Statistical Analysis

The patient characteristics were summarized using descriptive statistics including means, standard deviations, medians, interquartile ranges or 95% confidence interval for continuous variables, and frequencies, and percentages for categorical varia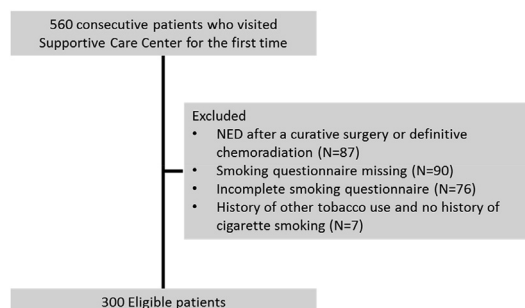bles. Comparisons among current, former, and never