INTRODUCTION

While the frequency of cancer of the upper aerodigestive tract (UADT) varies among different countries, it is a worldwide medical problem affecting nearly 400,000 individuals yearly. Approximately 30,000 Americans are diagnosed with UADT cancer annually, with 8000 dying from the disease each year (Silverman, 2001). In Italy, this cancer represents ~4% of all malignancies in men and 1% in women (Nocotera et al., 2004). Almost half of UADT cancer patients will not survive 5 years (Ries et al., 2001) and, in Europe and the United Kingdom, both incidence and mortality have risen over the last 30 years (Binnie 1991; LaVecchia et al., 1992).

It has been estimated that ~75% of UADT cancer is associated with heavy alcohol consumption, smoking, and, in many cases, a combination of the two (Blot et al., 1988). There is strong and consistent epidemiological evidence that alcohol consumption increases the risk of cancer of the oral cavity and pharynx (Elwood et al., 1984; Brugere et al., 1986; Franceschi et al., 1990; Doll et al., 1995). While the combined use of alcohol and tobacco dramatically increases risk, the major risk factor for never-smokers is alcohol consumption, with an odds ratio (OR) 3-fold higher in drinkers than non-drinkers (Bagnardi et al., 2001).

In a meta-analysis of >200 studies investigating the effects of alcohol on the risk of developing cancer, Bagnardi et al. (2001) concluded that alcohol consumption of 50 g (i.e. four standard drinks) or more per day significantly increased the risk of developing UADT cancer. However, significant increases in risk existed even at 25 g (or two standard drinks) per day. Research has yet to identify a threshold level of alcohol consumption below which no increased risk is evident.

CONCLUSION

The most recent national report on oral health by The National Institute of Dental and Craniofacial Research, ‘Oral Health US, 2002’ (Dental, Oral and Craniofacial Data Resource Center, 2002), indicated that there has been little improvement in the survival rates for patients with UADT cancer in the past 30 years. While survival is highly correlated with stage of cancer at diagnosis, size and location of tumour, and patient age, evidence suggests that heavy alcohol consumption (as well as continued smoking) may also be implicated (Allison, 2001). Since heavy alcohol use is a major risk factor for UADT cancer, tertiary prevention targeting drinking behaviour may help to prevent recurrent cancers and prolong survival in these patients.
In this regard, Martin et al. (2002) found that by adding the CAGE questionnaire to the normal clinical routine of asking simple quantity/frequency questions, detection of chronic alcoholics among UADT cancer patients was increased from 16 to 64%. The further addition of gamma-glutamyltransferase (GGT) or carbohydrate-deficient transferrin (CDT) biomarkers led to an 80–85% detection rate, respectively. Use of all tests in combination improved detection rates to 91%.

Effects of continued drinking after diagnosis

Heavy drinking appears to have a detrimental effect on cancer treatment outcome. During and after surgery and/or radiation treatment, continued heavy drinking has been found to be associated with treatment complications, cancer recurrence, and a markedly lower survival rate (Falk et al., 1989; Deleyiannis et al., 1996). Alcoholism prior to the initial cancer diagnosis is associated with increased risk of death within 5 years after diagnosis (Deleyiannis et al., 1996).

UADT cancer patients who are alcohol abusers or alcohol dependent have a 2- to 4-fold increased risk of developing complications during and after cancer surgery (Spies and Rommelspacher 1999). Spies et al. (1996) showed that, after oropharyngeal tumour resection, intensive care stays were significantly prolonged in alcoholics owing to an increased incidence of sepsis and pneumonia. Post-operative mortality in these patients was increased 3-fold (Tonnesen et al., 1992).

Recurrence of UADT cancer after treatment via second primary tumours (SPTs) is related to the duration and severity of the patient’s drinking history prior to diagnosis (Wynder et al., 1977; Day et al., 1994). In addition, Do et al. (2003) found that the risk of SPTs was 50% higher in patients who continued to drink >14 drinks per week after treatment, even after adjusting for smoking status. After adjusting for age at diagnosis and stage and site of cancer, alcohol intake emerged as an independent predictor of SPTs. In a recent multicenter European investigation of 876 male patients with laryngeal and hypopharyngeal carcinoma, continued consumption of alcohol was associated with more than a 3-fold increase in risk of development of SPT (Dikshit et al., 2005).

Factors associated with continued drinking after diagnosis

Little is known about the pattern and course of alcohol consumption during and after treatment for UADT cancer. What little evidence is available suggests that male gender, older age, less severe disease, less education, and heavier and longer drinking histories are factors associated with continued drinking (Gritz et al., 1999; Allison, 2001). While Christensen et al. (1999) found that patients who believed (i) that something other than smoking caused their cancer, and (ii) that they had little control over their future cancer-related health were more likely to continue smoking; these beliefs were unrelated to continued drinking.

In studying 191 UADT cancer patients whose median time since cancer treatment was 14 months, Allison (2001) found that frequency of drinking increased significantly with time since surgery. Some evidence suggests that alcohol use may initially decline from diagnosis to 1 month after diagnosis, and then increase significantly after that time (Gritz et al., 1999). Initial reduction in drinking after diagnosis may be related to the patient’s perceived health risk, although this perception may dissipate gradually over time.

Other than these two studies, little is known about specific changes in alcohol consumption over time, from initial diagnosis, through treatment, to short- and long-term follow-up. Indeed, there may be critical time frames when clients are either more responsive to intervention or, however, more vulnerable to relapse.

Even less research is available on the interdependence of alcohol and tobacco use in UADT cancer patients. Preliminary evidence suggests that the patterns of these behaviours after diagnosis may be quite different. Significantly, Allison (2001) found trends for increasing odds for alcohol drinking with increased time since treatment and decreasing odds for smoking with increased disease state. Further research along these lines may suggest that post-cancer interventions aimed at smoking and alcohol use require a significantly different emphasis as well as different strategies.

Along these lines, many other questions about the drinking/smoking connection with these patients remain to be answered. For example, does continued alcohol use make it more difficult for patients to quit smoking or vice versa? Although not specifically involving cancer patients, studies from the smoking literature suggest that abstinence from alcohol facilitates smoking cessation (Sobell et al., 1996; McClure et al., 2002). Indeed, heavy drinkers are more likely to continue smoking after cancer diagnosis than light or moderate drinkers (Vander Ark et al., 1997).

CLINICAL IMPLICATIONS

Strong evidence suggests that continued alcohol use can increase UADT cancer treatment complications, increase chances of second primary tumours, and increase mortality. In spite of this evidence, little research on factors associated with continued alcohol consumption has been reported. Much information is lacking. For example, are binge drinkers or daily drinkers at greater risk or does type of alcoholic beverage consumed matter in continued drinking after diagnosis? What factors contribute to the initial decrease in drinking immediately after initial cancer diagnosis, with the likelihood of heavier drinking increasing over time? What is the pattern and relationship between continued alcohol consumption and smoking after diagnosis? What are the specific characteristics of those who continue drinking after diagnosis?

Routine alcohol screening at the time of diagnosis as well as periodic monitoring of alcohol consumption patterns after diagnosis and treatment are indicated. Since many patients quit drinking immediately after diagnosis only to resume former drinking patterns after a few weeks, monitoring of drinking habits at each post-treatment follow-up visit for at least 6 months to a year is warranted. The use of alcohol biomarkers such as GGT and CDT in addition to self-report screening questionnaires (e.g., AUDIT) has been shown to provide more accurate detection of alcohol use patterns and alcohol use disorders in these patients.

Following positive screens, education and brief intervention is recommended. This is particularly important since newly diagnosed UADT cancer patients have little knowledge of the relationship between alcohol use and their disease (Irish
et al., 1996). In addition, since the prevalence of alcohol dependence in patients with UADT cancer can exceed 50% (Seitz and Simanowski 1986), referral to an alcohol treatment specialist would be indicated for many patients. This is particularly important since those with a longer and more severe history of alcohol use disorders are the ones most likely to continue drinking after diagnosis and treatment (Gritz et al., 1999).

It is readily apparent that more extensive research on patterns of continued alcohol consumption in UADT cancer patients is warranted. Findings could lead to a better understanding of this phenomenon, which, in turn, could result in the development of effective screening and intervention strategies.

REFERENCES


