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Alcohol use and smoking in burn patients at the Helsinki Burn Center

Raimo Palmu^{a,b,*}, Timo Partonen^b, Kirsi Suominen^c, Jyrki Vuola^d,
Erkki Isometsä^{a,b}

^a Department of Psychiatry, University of Helsinki and Helsinki University Hospital, Helsinki, Finland

^b Department of Public Health Solutions, National Institute for Health and Welfare, Helsinki, Finland

^c City of Helsinki, Social Services and Healthcare, Department of Mental Health and Substance Abuse, Helsinki, Finland

^d Helsinki Burn Center, Department of Plastic Surgery, University of Helsinki and Helsinki University Hospital, Helsinki, Finland

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ABSTRACT

Objective: We investigated alcohol use and smoking at time of burn and their relationships with severity of burn and presence of mental disorders.

Methods: Consecutive acute burn patients (N=107) admitted to the Helsinki Burn Center were assessed with the structured clinical interview for mental disorders (SCID) at baseline and after 6 months. Information regarding being under the influence of alcohol and having smoking-related activity at burn as well as about hazardous drinking (Alcohol Use Disorders Identification Test) and heavy smoking before the burn was recorded.

Results: Around half (52%) of the acute burn patients were under the influence of alcohol and 19% had been both drinking and smoking at the time of the burn. Patients under the influence at the time of burn had significantly higher prevalence of lifetime mental disorders compared to those patients who were not under the influence of alcohol (73.2% vs. 45.1%, $p=0.003$), especially alcohol dependence (55.4% vs. 13.7%, $p<0.001$) and anxiety disorders (28.6% vs. 9.8%, $p=0.015$). Patients who had both alcohol use and smoking at burn had even more often at least one mental disorder (95.0% vs. 51.7%, $p<0.001$), in specific alcohol dependence (90.0% vs. 23.0%, $p<0.001$), or psychotic disorder (25.0% vs. 6.9%, $p=0.016$). The main characteristics of the burns themselves did not differ significantly between these groups.

Conclusion: Half of the burn patients were under the influence of alcohol at the time of the burn in this study. In almost all patients where alcohol and smoking contributed to the burn a diagnosable alcohol use disorder was present. Interventions for those with alcohol use disorders and the associated risk behaviors are important for the prevention of burns.

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1. Introduction

Alcohol is one of the major causes of death in developed countries [1,2], and alcohol-related hospital admissions are

increasing [1,2]. Previous studies available suggest that among subjects who have been drinking different kinds of traumas are more frequent than among subjects not drinking [3-6]. The relationship between alcohol and trauma [7], specifically

* Corresponding author at: Department of Psychiatry, University of Helsinki and Helsinki University Hospital, P.O. Box 590, FI-00029 HUS, Finland. Fax: +358 9 471 63735.

E-mail addresses: raimo.palmu@hus.fi, raimo.palmu@thl.fi (R. Palmu).

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the association between alcohol and burns, was widely studied already in the 1980s. However, the methodological heterogeneity in defining of alcohol influence on burn makes it difficult to compare the results of different studies. Howland and Hingson [8] reviewed 32 studies published between 1947 and 1986 of confirmed alcohol-related burns and observed that alcohol was recorded on admission in 1–50% of cases. In addition, Haum et al. [9] found that 31% of burn patients had acute alcohol intoxication. In a study measuring blood alcohol level (BAL) at intake, McGill et al. [10] noted the proportion of alcohol-related burns to be 18%. Albright et al. [11] suggested routine alcohol screening on admission because they found that one-third of burn patients were at-risk drinkers and more than one-fourth (29%) were binge drinkers at least monthly. In a recent British review [1], reported that alcohol-related burns had significantly increased, comprising 20% of all acute admissions in tertiary burn units. They found that alcohol-related burns are more likely to be caused by flame, to be a strong indicator of underlying alcohol dependence, and to have an adverse effect on burn outcome.

Smoking is also common among burn patients and is another major health problem worldwide with high mortality and morbidity. In a review of Anwar et al. [12], using the years 1981, 1991, and 2001, the trends and associations between smoking, substance abuse, psychiatric history, and burns in England were explored. They found no increase in the proportion of burn patients who smoked, although the number of smokers had increased over this 20-year period. However, the prevalence of smoking, substance abuse, and psychiatric history was consistently high compared with the general population.

Severe burns are life-threatening and devastating traumas [1,8,9,12], to which drinking and smoking may both predispose and complicate. Smoking involves the recurrent lighting of cigarettes, elevating the risk of fires, whereas drinking involves well-known hazards in terms of poor motor coordination and judgment, adding to the risk of burn [8,9,12]. However, important clinical epidemiological information related to alcohol and smoking among burn patients remains unknown. Being under the influence of alcohol or smoking at time of the burn may indicate the presence of a substance use disorder. Such findings would have implications for prevention and treatment of burns.

In this study, we compared acute burn patients who had been under the influence of alcohol and/or had smoking-related activity at the time of the burn with patients who had not. Our aims were to investigate: (1) prevalence rates of alcohol use and smoking-related activity at the time of the burn, (2) the relationships between alcohol use and smoking with burn and treatment, (3) prevalences of mental disorders, particularly alcohol use disorder, among burn patients under the influence of alcohol and/or with smoking-related activity at time of burn, and (4) prevalences of mental disorders, particularly alcohol use disorder, among burn patients with risk drinking or heavy smoking before the burn.

2. Method

2.1. Participants

Consecutive acute adult burn patients admitted to the Helsinki Burn Center, Finland from 1 May 2006 to 31 October 2007 were eligible for this study. Patients who were Finnish-speaking and at least 18 years old ($n=156$) were included. However, 19 patients (12.1%) died and 10 (6.4%) were transferred to another hospital after immediate care, so could not be interviewed. A further 18 patients (11.5%) were excluded due to insufficient understanding of Finnish and poor cognitive or sensory abilities. One patient declined to participate, and another withdrew consent after the baseline interview. Therefore, 107 (68.6% of the total sample) consecutive acute burn patients participated. Information in more detail of this cohort has been published elsewhere previously [13,14]. The study protocol was approved by the Ethics Committee of Helsinki University Hospital [13–15].

2.2. Study procedures and measures

An experienced psychiatrist (RP) interviewed all consecutive acute burn patients admitted to the Helsinki Burn Center using the Clinician Version of the Structured Clinical Interview for DSM-IV-TR (SCID-CV) for mental disorders [16]. Patients were interviewed on two separate occasions, at baseline (during acute care at hospital) and six months later. Axis I diagnoses were assessed for (a) lifetime (including final month) prior to the burn, (b) one month prior to burn, (c) acute care in hospital, (d) six months follow-up, and (e) the final month of the follow-up. In total, 104 patients (97.2%) were interviewed with SCID-II to diagnose personality disorders [17]. Patients also filled out self-report questionnaires to assess different psychological symptoms at baseline and at the end of follow-up. Severity of the burn was evaluated in terms of total body surface area (% TBSA), and information about sociodemographic factors, earlier diseases, type of treatment, and the burn incident itself was gathered from patient records and by interviews using study forms planned especially for this study. The results of the gathered information have been published in detail previously elsewhere [13–15].

2.3. Drinking habits before the burn and during follow-up and alcohol influence at burn

Alcohol Use Disorders Identification Test (AUDIT) [18,19] is a 10-item scale designed to identify individuals with hazardous and harmful drinking during the past 12 months. AUDIT [18,19] was originally planned for primary care and has been widely used among trauma patients. Respondents score between 0 and 4 on each item, and summed scores range from 0 to 40. Drinking is considered hazardous when the AUDIT sum score for men is ≥ 8 and for women ≥ 6 . These universal cut-off scores [2,18–20] were used to separate the cohort according to baseline AUDIT sum scores to before the burn “at-risk drinkers” and “not at-risk drinkers” [21,22]. AUDIT was repeated at six

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