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The role of alcohol in maxillofacial trauma—a comparative retrospective audit between the two centers

Ross O.C. Elledge[a,b,*], Rokhsareh Elledge[b], Peter Aquilina[c], James Hodson[d], Stephen Dover[e]

[a]*Department of Medicine, Worcestershire Royal Hospital, Charles Hastings Way, Worcestershire, United Kingdom*
[b]*College of Medical and Dental Sciences, University of Birmingham, Edgbaston, Birmingham B15 2TT, United Kingdom*
[c]*Department of Oral and Maxillofacial Surgery, Westmead Hospital, Westmead NSW 2145, Australia*
[d]*Statistician, Wolfson Computer Laboratory, Queen Elizabeth Hospital Birmingham, Mindelsohn Way, Edgbaston, Birmingham B15 2WB, United Kingdom*
[e]*Department of Oral and Maxillofacial Surgery, Queen Elizabeth Hospital, Mindelsohn Way, Edgbaston, Birmingham B15 2TH, United Kingdom*

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Abstract

Alcohol abuse and maxillofacial trauma, particularly that due to interpersonal violence, have a well-established relationship in the literature. We present a retrospective audit comparing the role of alcohol in maxillofacial trauma between Selly Oak Hospital in Birmingham, United Kingdom and Westmead Hospital in Sydney, Australia, and the association between alcohol involvement and patient demographics, including age, sex, marital status, and employment status. Also presented are the differences between the two centers in terms of mechanisms and types of injuries and the locations where these injuries were sustained. Alcohol was involved in 34.78 and 30.77% of patients at Westmead and Birmingham, respectively. A multiple logistic regression analysis revealed a reduced likelihood of alcohol involvement in episodes of maxillofacial trauma where patients were unemployed ($P = .04$), and where injuries were sustained secondary to mechanisms other than assault ($P < .001$) and in locations other than pubs and nightclubs ($P = .024$). There appeared to be no statistically significant contribution to the likelihood of alcohol involvement by treating center, marital status, patient sex, or age. Alcohol continues to be a strong driving factor in cases of maxillofacial trauma, particularly those due to alleged assault, with a typical patient demographic of the gainfully employed frequenting drinking establishments being most at risk for alcohol-related trauma, most commonly sustaining their injuries secondary to assault. Identifying patient groups most at risk is a key step in developing public health strategies aimed at prevention, and our findings would appear to suggest this group of patients as being the most worthwhile to target with measures aimed at reducing alcohol-fueled maxillofacial trauma.

Keywords: Alcohol; Maxillofacial trauma; Prevention; Epidemiology; Assault; Injury

Introduction

The role of alcohol in maxillofacial trauma is well established with alcohol being implicated in 47–58% of maxillofacial injuries in recent research (Chandra Sekar and Reddy, 2008; Hutchison et al., 1998; Laverick et al., 2008; Lee and Antoun, 2009; Lee and Snape, 2008). Where the mechanism of injury was alleged assault however, alcohol is often far more commonly involved, with 55–87% of maxillofacial injuries due to alleged assault involving alcohol (Hutchison et al., 1998; Laverick et al., 2008; Lee et al., 2007). Interestingly, maxillofacial surgeons may have a role to play in multiagency prevention of alcohol abuse and recent research has demonstrated a place for brief intervention strategies after alcohol-related facial injury in the reduction of alcohol consumption (Oakey et al., 2008; Smith et al., 2003; Warburton and Shepherd, 2002).

To the authors' knowledge, there are no direct comparative audits in the literature looking into role of alcohol and maxillofacial trauma internationally, between different countries with different licensing laws and health care guidelines on alcohol.

Materials and methods

Patient records for all emergency admissions handled by the oral and maxillofacial surgery teams at Westmead Hospital in Sydney, Australia and Selly Oak Hospital in Birmingham, United Kingdom for the period January to

* Corresponding author. Department of Medicine, Worcestershire Royal Hospital, Charles Hastings Way, Newtown Road, Worcester WR5 1DD Worcestershire, United Kingdom. Tel.: +44(0)1212493719; fax: +44(0)1905760625.

E-mail address: rosselledge@doctors.net.uk (R.O.C. Elledge).

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June 2008 were searched. Inclusion criteria were anyone who had sustained a fracture to the facial skeleton within this period, which was confirmed with appropriate diagnostic imaging. Maxillofacial surgeons at the two centers were responsible for an equivalent spectrum of injuries.

The same data capture form was used in both hospitals recording patient age, sex, marital status, and employment status at the time of injury. Injuries sustained were recorded, and the mechanism of injury and location. In the case of alleged assaults, whether the assailant(s) was/were known to the patient was also recorded.

Injuries were categorized according to whether alcohol was involved or not. Wherever the information was provided, amount of alcohol consumed immediately prior to trauma was recorded in units (converted from Australian Standard Drinks in the case of data from Westmead, a unit being defined as 8 g of alcohol and an Australian Standard Drink as 10 g).

Statistical analyses

The Statistical Package for the Social Sciences (SPSS, version 16.0) was used for the statistical analysis. Descriptive statistics for quantitative and qualitative values are given by the mean (standard deviation [S.D.]) or absolute numbers as appropriate and expressed as percentages. A multiple logistic regression analysis was carried out to find the effects of demographic factors on the likelihood of alcohol involvement in the maxillofacial injuries. Alcohol involvement (yes or no) was used as the dependent variable against sex, marital status, employment, mechanism of injury, location where injury was sustained, treating center and patient age as independent variables. A forward model was used for variable selection in the logistic regression analysis.

Results

Westmead Hospital, Sydney NSW, Australia

A total of 98 case notes were requested, of which 6 (6.12%) were unavailable or failed to meet inclusion criteria. From those audited, most (86.96%) of the patients were male and patients had an average age of 34.01 (S.D. 17.05) years. Regarding marital and employment statuses, 68 (73.91%) of patients were unmarried (either divorced, separated, or never married) and 27 (29.35%) patients were unemployed at the time of their injuries.

Alleged assault represented the most common mechanism of injury (58.70%) with other common causes shown in Fig. 1. In those cases that involved an alleged assault, the assailant(s) was/were unknown to the victim in most (72.22%) of the instances. All three female victims of assault knew their assailant(s), in contrast to male victims, who knew their assailant(s) in only 23.53% of instances. Fig. 2 illustrates the most common locations where injuries occurred were recorded.

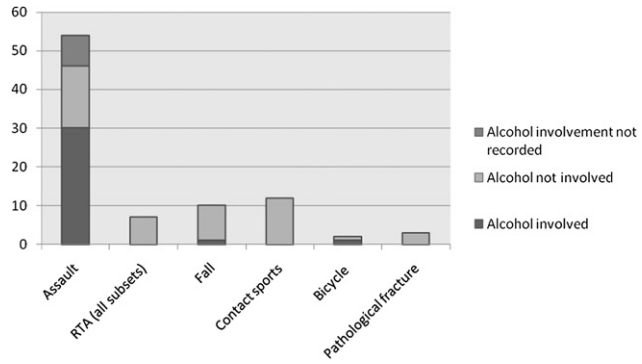

Fig. 1. Mechanism of injuries and relation to alcohol involvement, Westmead Hospital, Sydney.

Orbital floor fractures were the most common (39.13%) type of injuries sustained. Fractures were at multiple locations of the facial skeleton in 40 (43.48%) cases.

Alcohol was recorded as being involved immediately prior to injuries in 34.78% of all patients, escalating to 55.56% when calculated specifically for the group of patients where alleged assault was the mechanism of injury. Overall, where the amount of alcohol consumed prior to injury had been recorded, this was calculated as having an average value of 9.35 (S.D. 6.51) units (range, 2–24 units).

Selly Oak Hospital, Birmingham, United Kingdom

A total of 187 patients were referred from Selly Oak Hospital to the regional maxillofacial trauma review clinic at the Queen Elizabeth Hospital in Birmingham. Of these, 134 (71.66%) patient records were excluded, the majority on the basis of no facial fracture being identified radiographically. Patients had an average age of 32.06 (S.D. 16.57%) years and again the majority (82.69%) of patients were male. Of the patients seen at Selly Oak during the audit period, 36 (69.23%) were unmarried and 8 (15.38%) were unemployed at the time of sustaining their injuries. Table 1 gives a brief overview of differences in the demographic data of patient groups seen at the two units.

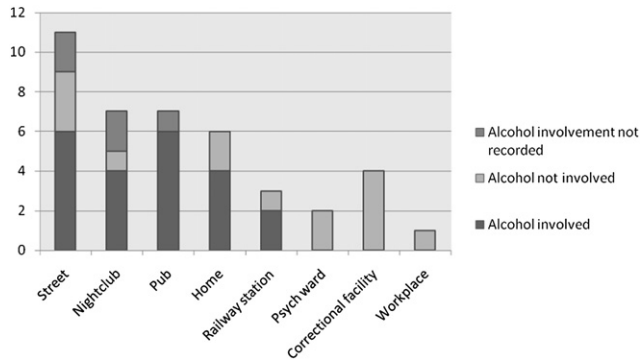

Fig. 2. Location where alleged assault occurred and relation to alcohol, Westmead Hospital, Sydney.