Emergency Physician Screening and Management of Trauma Patients with Alcohol Involvement

Kai H. Lee, James B. Olsen¹, Jiandong Sun²

Departments of Surgery, Oral and Maxillofacial Surgery Unit, Western Health, Footscray, ¹Oral and Maxillofacial Surgery Registrar, Western Health, Melbourne, Victoria, ²School of Public Health and Social Work, Queensland University of Technology, Brisbane, Australia

Abstract

Background: Alcohol screening and brief intervention (SBI) in trauma patients has been reported in literature to be effective in changing harmful drinking patterns and injury recurrence. Despite good evidence that SBI can benefit patients and provide a more holistic care, it is not routinely implemented in acute medical settings in Australia, in particular emergency departments (EDs). Objective: This paper aims to assess the knowledge, confidence, and practice of alcohol SBI in trauma patients by emergency physicians throughout Australia and New Zealand through an online survey. Methods: Major EDs in Australia and Zealand were approached to participate in an online survey. Results from the survey were analyzed using simple descriptive summary statistics. Results: Fifty-eight physicians participated in the online survey. Almost all physicians reported at least 10% of all patients managed in ED had traumatic injuries and 35% had alcohol involvement. About 66% were consultant physicians and 84% had 5 or more years of practice. Sixty-four percent agreed to have adequate training in SBI, 22% had adequate time and resources, 47% would like more training in patient screening, and 72% were more likely to deliver SBI in 5 min. Limited time and resources were seen as major barriers. It was found that better understating of SBI may lead to higher confidence and more practice, or vice versa. Conclusion: High proportion of participants in this survey felt under-equipped to deliver SBI due to time limitation, perceived lack of resources, unsuitable environment, and supportive staff. There exists an opportunity to develop a shortened and efficient SBI program that can improve utilization of SBI in an emergency setting.

Keywords: Alcohol, intervention, intoxication, screening, trauma

INTRODUCTION

Alcohol is a key causative factor in traumatic injuries. Alcohol intoxication leads to impairment in judgment and loss of inhibition and can render victims vulnerable to accidents and may incite physical aggression. Traumatic injury related to alcohol consumption is a major global health burden. Australian data reported approximately 3000 deaths and 65,000 hospitalizations per year to be attributable in part to at risk alcohol use. Alcohol-related trauma has received wide media attention in recent times in particular in setting of interpersonal violence. Methods to combat this potentially preventable behavioral problem and increasingly more serious social hazard should lie in targeted screening and education of the at-risk groups in the community not only in primary health-care settings but also in training of acute medical staff to better manage these patients in acute settings.

Alcohol screening and brief intervention (SBI) can be effective in reducing the consumption of alcohol in high-risk groups. The period immediately following an alcohol-related trauma offers clinicians an ideal opportunity to educate patients about harmful effect of intoxication and impact of such injuries. Drug and alcohol staff and services do exist in many major hospitals and provide invaluable services both in inpatient and outpatient settings. However, it may be challenging to link patients into these services in the setting of acute trauma. As a result, alcohol and drug issues are often managed in the primary care setting.

The American College of Surgeons Committee on trauma implemented a requirement that Level I trauma centers must...
have a mechanism to identify and provide an intervention for problem alcohol drinkers in acute care pathway. However, in Australia and New Zealand SBI is not routinely implemented in acute care. This valuable public health strategy is not routine care in ED in most other countries. This study aims to assess the knowledge and current practice of SBI by emergency physicians in acute trauma presentations. Survey findings may help in designing a more effective and efficient alcohol intervention program by identifying hurdles such as deficiencies in resource and knowledge.

**Methods**

Ethical approval was gained from Eastern Health Ethics Board (Melbourne) before data collection. A web-based survey was made available to doctors of several public metropolitan hospital emergency departments (EDs) throughout Australia and New Zealand. Consent was obtained from unit heads of invited EDs and implied consent was assumed for participants who completed the survey.

The survey questions were centered on doctors’ knowledge and current practice of alcohol intervention within the acute trauma setting. Basic demographics about the respondents were also recorded including their age, gender, location of practice, stage of their training, and the length of their experience working in emergency medicine.

Simple descriptive summary statistics were then carried out to describe the results of the sample data.

**Results**

**Sample description**

Fifteen tertiary EDs were invited to participate in this study through correspondence to each unit head, of which ten departments participated. Out of the 230 physicians recruited to complete the online survey, 58 physicians responded (25% response rate). The demographic characteristics of the respondents are presented in Table 1. Thirty-eight percent of respondents were female and 65% were consultant physicians. The vast majority of physicians had a minimum of 5 years work experience in ED.

**Experience and beliefs**

In terms of practitioners’ experience in dealing with patients presenting with traumatic injuries, 97% of physicians reported over 10% and 71% reported that 20% or more of their patients were those with traumatic injuries. Thirty-five percent of these injury presentations were considered by participants to have alcohol involvement.

Almost all surveyed physicians would review relevant alcohol history and order relevant investigations for patients with alcohol-related injuries. Fifty-five percent of respondents would deliver a brief alcohol intervention, 47% would refer the patient to an alcohol treatment service or clinician.

| Gender | State of practice | n (%) | n (%) |
|--------|-------------------|-------|-------|
| Male   | 36 (62.07)        | 14 (24.14) | ACT: Australian Capital Territory |
| Female | 22 (37.93)        | 14 (24.14) |
| Age    |                   |       |
| < 30 years | 6 (10.34)        | 6 (10.34) |
| 30-40 years | 23 (39.66)     | 6 (10.34) |
| 40-50 years | 24 (41.38)     | 2 (3.45) |
| > 50 years | 5 (8.62)          | 1 (1.72) |
| Consultant or trainee | 38 (65.52) | 1 (1.72) |
| Trainee | 20 (34.48)        | 1 (1.72) |
| Years of practice |       |       |
| < 5 years  | 9 (15.52)        |       |
| 5-10 years | 20 (34.48)       |       |
| 10-20 years | 23 (39.66)     |       |
| 20 years   | 6 (10.34)         |       |

Most participants, at 67% and 55% respectively, considered screening patients for risky levels of alcohol use and providing brief alcohol intervention to such patients to be their responsibility when treating patients with alcohol-related injuries.

Sixty-four percent agreed (or strongly agreed) that they had adequate training in managing patients with alcohol-related injuries and furthermore, 22% believed they had adequate time and resources when facing such patients.

Sixty-six percent of participants reported that they would like more training on delivering brief interventions; 62% agreed (or strongly agreed) that they needed more information on where to refer patients for appropriate alcohol treatment and 47% would like more training in screening patients against high-risk drinking patterns.

Seventy-two percent of respondents indicated they were more likely to deliver an alcohol intervention if it could be delivered in 5 min; 97% of study participants preferred the time to deliver an alcohol intervention to be 10 min or less.

**Understanding, confidence, and practice**

With regard to alcohol screening and management, the majority (85% and 81%, respectively) of respondents agreed or strongly agreed that they had a good understanding of and were confident in implementing “conducting relevant laboratory tests.” Twenty-three percent of participants reported good understanding and confidence in “conducting motivational interviewing” and “providing web-based brief interventions” [Table 2]. Consistently, these two approaches had the lowest mean scores [Table 2].

All respondents affirmed routine practice of taking alcohol history when dealing with such injuries, with 50% “often or always” performing this practice. Furthermore, 19% stated “often or always” providing a brief intervention to these patients [Table 2] additionally.
The mean scores (standard deviations) for overall understanding, confidence, and practice were 3.11 (0.73), 3.11 (0.76), and 2.02 (0.81), respectively. These scores showed high positive correlation (between understanding and confidence: $R = 0.79$, $P < 0.001$; between understanding and practice: $R = 0.56$, $P < 0.001$; between confidence and practice: $R = 0.60$, $P < 0.001$). This suggested better understanding may lead to higher confidence in the utilization of alcohol intervention, or vice versa.

There were no significant differences in understanding and confidence scores in the practice of SBI between genders while females reported significantly more practice than their male counterparts [Table 3]. There appeared to be a pattern that older age, more years of practice and being consultant physician (versus trainee) were associated with a poorer understanding and confidence and less practice, with some comparisons reaching statistical significance. A statistically significant difference in understanding and practice scores between states of practice was also observed, with participants from other Australian states and New Zealand and West Australia reporting a better understanding and more practice than those from other two Australian states [Table 3].

**Discussion**

Respondents in this study were well represented by both consultant physicians and doctors in training with most respondents having 5 or more years of experience in emergency medicine. Trauma unanimously made up a part of their workload and alcohol was reported to be a contributing factor in approximately one-third of trauma presentations. Almost all clinicians would take an alcohol history from such patients, half would deliver alcohol intervention, and less than half would consider referring these patients onward for specialist treatment.

The majority of respondents stated that in order for alcohol screening and intervention to be a realistic treatment goal, it would need to be implemented in under ten minutes. Obstacle to effective delivery of intervention seems not to be in the level of competency of the clinicians in delivering such treatments themselves, but rather in the limited time they have in the emergency setting to deliver such care effectively. Other barriers to effective alcohol intervention are the notion that emergency setting was an unsuitable environment, lack of experience, belief that this treatment...
is better delivered in primary care setting, under-equipped nursing staff, lack of resources, and clinical inertia. Sixty-six percent of respondents in the study stated that they would like more training on delivering brief alcohol intervention indicating the need to introduce a time efficient and acceptable strategy.[5]

Acute presentation to the EDs with alcohol-related trauma offer acute care physicians a unique opportunity to effect changes in their patients’ future drinking behavior by highlighting their harmful effect and severity of their injuries. Alcohol intervention in the trauma patient has been demonstrated in the literature to be associated with a reduction in alcohol intake and a reduced risk in trauma recidivism,[6-9] in particular, ED-based intervention initiated by doctors.[7,8,11] Therefore, it is possible for physicians to implement SBI in the emergency setting which will be time and cost efficient and beneficial to the patients in the long-term.

Patients report a plethora of differing motivating factors to reduce their drinking habits.[12] Ideally, clinicians must also identify and manage the highly prevalent mental health and social issues that exist in many problem drinkers, as these can reduce chances of successful therapy.[13] It is probably merely repetitive communication with patients from health professionals that can lead to long-term reduction in drinking patterns. Patients presenting to ED with alcohol-related trauma provide emergency physicians with opportunities to open dialogue about potentially harmful drinking habits and the injuries they have sustained. The brief alcohol intervention given during this window of opportunities should be complemented by referral to primary care physicians or other health professionals for further support. More than 60% of physicians surveyed did not know where to refer patients for follow-up, suggesting this to be an area for further improvement and targeted education.

Most physicians in this study were confident in ordering appropriate laboratory tests in screening at risk alcohol use. However, <23% were confident in conducting motivational interviewing and providing web-based interventions to problem drinkers. Relying on blood alcohol concentration alone is not sufficient to identify patients who would benefit most from brief alcohol interventions.[14] Furthermore, it has been shown that relying solely on clinical suspicion to detect acute intoxication or underlying alcohol problems, is inaccurate and structured questionnaires must be employed.[10] Laboratory tests confirm the presence of alcohol, but an effective screening questionnaire help clinicians gauge the level of problematic alcohol use. In addition, there is no mandatory blood alcohol test in clinical practice in Australia and New Zealand and as such blood alcohol level is not routinely noted in medical records.

Although alcohol screening is not routine practice for all emergency physicians according to this study, most consider it their responsibility to screen emergency patients for risky levels of alcohol consumption and to provide information on drinking behavior and referrals to specialists in alcohol intervention to such patients. Traditional alcohol screening tools that identify patients with moderate to high levels of dependence on alcohol include the well validated “CAGE” questions,[15] the “AUDIT” questionnaire,[16] and the “AUDIT-C” questionnaire which is a combination of previous two methods.[17] SBI in the emergency setting is effective and should be incorporated into practice.[10] In contrast, there is less support in the literature for community-based intervention in reducing excessive drinking behavior and alcohol-related harm.[18] This reinforces the fact that patients presenting to ED with alcohol-related harms are more likely to recognize the need to change.

SBI entails the provision of personalized feedback and advice from an ED doctors which can be through short motivation interview but can also involve the doctors facilitating written materials- and or web-based correspondence. In particular computerized SBI in the ED can efficiently deliver personalized and meaningful feedback to patients within the tight time constraints in the emergency setting.[19] Computerized screening is also reported to have an increased detection rate of problem drinkers when compared with routine medical screening,[20] possibly due to the ability of computerized models to overcome language barriers such as the use of graphics and build in translating program.[20,21] Telephone screening and intervention following an inpatient stay by clinicians is a viable alternative to inpatient treatment and has been found that to be effective.[22]

This study reported some interesting relationships between the experience of physicians and location of their practice compared to their understanding and practice of alcohol screening and intervention. Practitioners over 40 years of age demonstrate poorer understanding and confidence in SBI than those under 40 years old. However, older practitioners showed no statistically significant difference in the application of current practice. This may be due to the fact that older practitioners have not received formal training in alcohol SBI, compared with their more junior counterparts, however, they still practice alcohol intervention, albeit with a poorer level of understanding and confidence in the process. Although male and female practitioners had no statistical difference in their understanding and practice of alcohol screening and intervention, female doctors show higher application rates compared to their understanding and practice of alcohol screening and intervention. Practitioners over 40 years of age demonstrate poorer understanding and confidence in SBI than those under 40 years old. However, older practitioners showed no statistically significant difference in the application of current practice. This may be due to the fact that older practitioners have not received formal training in alcohol SBI, compared with their more junior counterparts, however, they still practice alcohol intervention, albeit with a poorer level of understanding and confidence in the process. Although male and female practitioners had no statistical difference in their understanding and confidence with alcohol screening and intervention, female doctors show higher application rates which was statistically significant.

This paper shows that a large percentage of emergency physicians working at the forefront of alcohol-related trauma presentation feel under-equipped and time pressured to be screening patients and delivering intervention care. Therein exists an opportunity to develop a time efficient and effective
method to empower them to administer such interventions. Physician-led intervention for alcohol-related trauma patients can lessen the burden on the limited ED resources and the benefits significantly outweigh the initial costs of setting up emergency-based SBI.[23] Furthermore, maxillofacial trauma has been reported as a recurrent disease due to the role alcohol and interpersonal violence play in its causation and physicians treating these patients in acute settings have the obligation to inform and educate these patients.[24]

Limitations to this paper include the fact that the ED directors who agreed to participate in this survey were mainly from larger metropolitan regions and as a result, there is under-representation from smaller rural-based hospitals. This survey is aimed toward emergency medicine specialists or doctors in training in emergency medicine. The survey was active for extended time period and several e-mails were sent to ED Units directors to maximize participation rate. The difficulty in capturing a higher response rate is likely due to the shift work nature of ED and a high proportion of staff made up of locum doctors. However, results from this survey confirmed high proportion of respondents to be experienced consultant doctors which reflects an accurate representation of ED specialists’ views. This study did not ask ED practitioners to differentiate patients who are binge drinkers from patients with alcohol dependence. Patients with alcohol dependence are unsuitable for brief intervention and instead require more extensive counseling.[25] The survey did not ask clinicians to elaborate reasons for their answers and to quantify certain answers as it is not designed to be a clinical audit but rather an overview of clinicians’ current practice. For example, one question from the survey asked respondents to state if >10% of patients they manage present with trauma. This question is not to ascertain workload of ED clinicians but rather to ascertain that trauma management is an important part of their practice. The researchers aim to extract key findings from this study to design a simple to implement SBI strategy in a follow-up study.

CONCLUSION

This study explored the awareness, knowledge, willingness to utilize SBI by ED clinicians during management of alcohol-related trauma patients. It also explored possible barriers in implementing BAI as relevant in ED settings. Trauma settings offer the ED clinicians a unique opportunity to provide education and advice which can lead to a reduction in injury recurrence and potentially alter their harmful drinking habits. The study found that ED clinicians are generally receptive to the idea of incorporating SBI into their trauma practice but would like to have a simple to use and time efficient method.

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Conflicts of interest
There are no conflicts of interest.

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