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SPECIAL ARTICLE

ALCOHOL AND THE ACCIDENT AND EMERGENCY DEPARTMENT: A CURRENT REVIEW*

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Abstract — Alcohol misuse constitutes a major problem in our modern society and both physical and mental alcohol-related harm result in a large number of Accident and Emergency (A&E) attendances, thus imposing a significant burden on the workload and financial resources of the department. The current management of problem drinking by most A&E departments could be further improved. The introduction of a holistic approach that includes efficient screening instruments and effective brief, anti-alcoholic interventions, for the management of these patients must be considered. This should strengthen the preventive role of A&E departments, and, in the long term, may result in a decrease in the number of cases of alcohol misuse and in alcohol-related attendances.

INTRODUCTION

Alcohol misuse is a major problem in our modern society, and a wide range of physical, social, and psychological problems are associated with excessive drinking. Over the last 30 years, annual alcohol consumption by the average British adult has increased considerably by ~2–3 l of pure alcohol per person (Alcohol Concern, 1999; Pirmohamed *et al*., 2000); and currently, 1 in 4 men, and 1 in 10 women are believed to be drinking in a 'hazardous' or even 'harmful' manner, that is >21 and >14 units a week respectively (Paton, 1994; Department of Health, 1999; Pirmohamed *et al*., 2000). One unit is defined in the UK as ½ pint of beer, a glass of wine, or a standard measure of spirits (~10 g of ethanol).

People with serious drinking problems have a significantly increased morbidity and mortality, when compared to age- and sex-matched controls. Every year, overt alcohol-related problems place a significant burden on general hospitals across the country, and especially on Accident and Emergency (A&E) departments (Rhodes *et al*., 1990; Pirmohamed *et al*., 2000).

A large number of attendances at A&E departments are associated, directly or indirectly, with both dependent drinking and risky single-occasion drinking, which may result in accidents, assaults, fights, and other traumatic events requiring hospital care (Green *et al*., 1993; Department of Health, 1993; Waller *et al*., 1998; Thom *et al*., 1999).

Currently, in an attempt to decrease alcohol-related harm, A&E departments have been selected as a possible base for screening patients for alcohol misuse, and for the delivery of brief, anti-alcoholic interventions (Peters *et al*., 1998; Wright *et al*., 1998; Thom *et al*., 1999).

The purpose of this article is to analyse the burden imposed on A&E departments by alcohol-related problems, and the appropriate management of these patients by A&E staff; finally to critically discuss the efficiency of these methods, as well as the need for, and feasibility of, any other possible measures that can be employed in order to strengthen this function of A&E departments.

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ALCOHOL AND THE A&E DEPARTMENT

Acute and chronic excessive alcohol intake can lead to the development of physical and mental acute ill-health, and drinking clearly leads to many of the problems that bring patients to an A&E department (Fig. 1).

Over the last 20 years, several studies have investigated the size of the alcohol consumption problem, and its effect on the use of emergency hospital services (Jariwalla *et al*., 1979; Jarman and Kellett, 1979; Holt *et al*., 1980; Barrison *et al*., 1982; Taylor *et al*., 1986; Dowey, 1993; McKnight *et al*., 1995; VanderPol *et al*., 1996; Pirmohamed *et al*., 2000). It is estimated that ~2–40% of all A&E attendances are due to alcohol-related problems, with the relative proportion depending on the location of the hospital and the mixture of the target population, as well as the exact investigative method used.

Currently, in the UK, 1–3 million people attend A&E departments every year for a wide variety of problems due to alcohol misuse (Peters *et al*., 1998; Department of Health, 1999); and a significant proportion of all these attendances result in hospital admissions (with the majority for just 1 day), accounting for ~5% of all admissions into hospital (Department of Health, 1999; Pirmohamed *et al*., 2000).

It is estimated that alcohol misuse accounts for ~12% of total NHS spending on hospitals, i.e. ~£3 billion a year (Alcohol Concern, 2001).

A&E attendances due to drinking problems can occur at any part of the day, but they usually occur more often at nights and during weekends (Peppiatt *et al*., 1978; Yates *et al*., 1987; Pirmohamed *et al*., 2000). More than twice as many men as women attend A&E departments due to an alcohol-related problem, and the majority of these patients are young adults aged <40 years (Peppiat *et al*., 1978; Midford *et al*., 1995; Harnett *et al*., 1999; Pirmohamed *et al*., 2000).

Different age groups are associated with different types of alcohol misuse and hence with different alcohol-related symptoms. Adolescents aged <18 years are associated mainly with risky single-occasion drinking (Plant *et al*., 1990; Moore *et al*., 1994; Miller and Plant, 1996; Webb *et al*., 1996; Harnett *et al*., 1999), and the commonest reasons for attendances in this age group are minor injuries (usually sustained from falls), assaults, head injuries and alcohol intoxication. At the

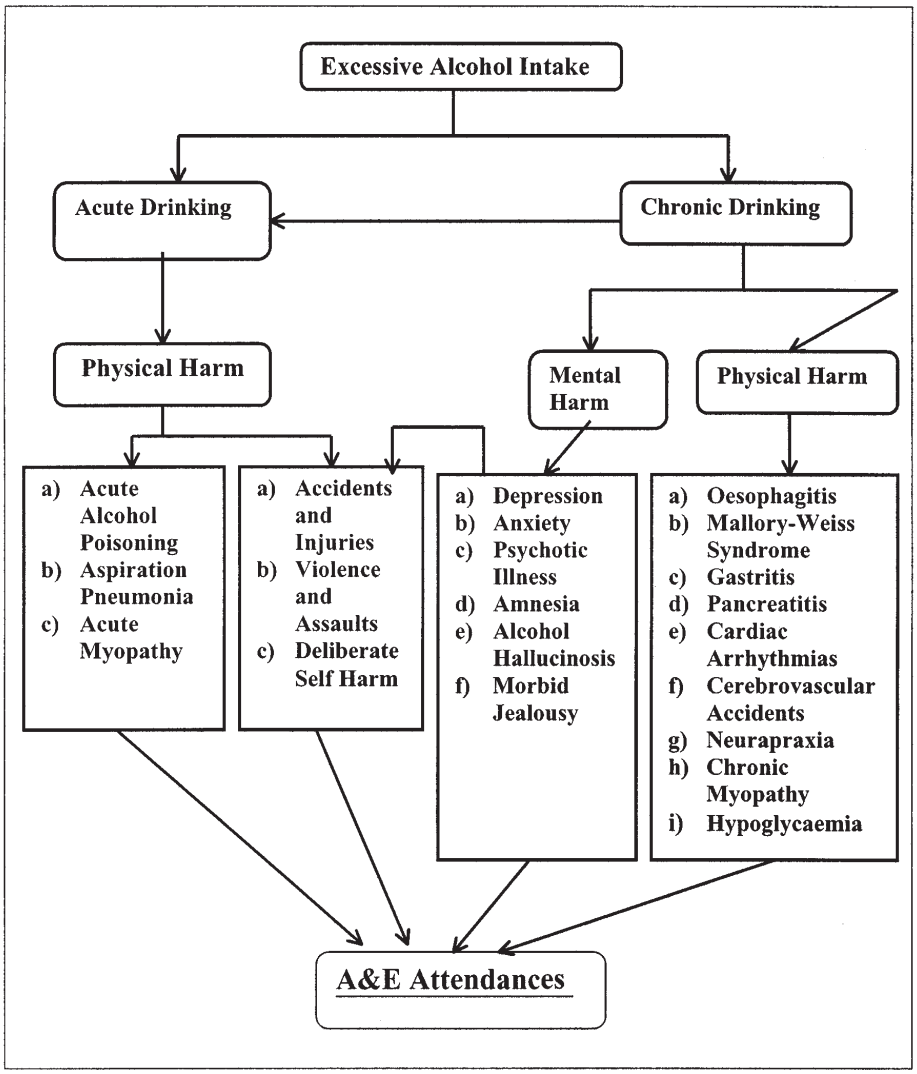

Fig. 1. The main alcohol-related health problems which can bring an alcohol-misuser to an Accident and Emergency department.

other extreme, patients aged >60 years are more likely to attend the A&E department due to falling while intoxicated (Harnett *et al*., 1999).

The great majority of alcohol-related A&E patients are 18–60 years old. About 20% of these involve a serious health problem due to long-term alcohol misuse, such as gastrointestinal bleeding, pancreatitis, liver failure and alcohol withdrawal symptoms. These patients are very likely to attend the A&E department on more than one occasion over a short period of time, and, in some or all of these attendances, be admitted into hospital for a substantial period, thus imposing a significant burden on the workload and financial resources of both the A&E department and the hospital (Holt *et al*., 1980; Buchan *et al*., 1981; Lockhart *et al*., 1986; Rainer *et al*., 1996; Pirmohamed *et al*., 2000).

The rest of these attendances involve mainly accidents with associated injuries, episodes of deliberate self harm, and episodes of violence and assaults while being under the influence of alcohol (Dennis *et al*., 1997; Maio *et al*., 1997; Petridou *et al*., 1998; Brismar and Bergman, 1998; Blenkiron *et al*., 2000).

Accidents

Currently, accidental injury comprises the greatest public health problem in the UK for people 1–40 years of age, and alcohol-related accidents and injuries in this age group are associated with greater morbidity and mortality than all other alcohol-related disorders (Morgan and Ritson, 1998).

Alcohol is one of the most significant factors in accidents occurring at home or at work, in unintentional drownings, fire injuries, and road-traffic accidents (RTAs). Driving under the influence of alcohol can affect the driving behaviour in a complex manner that both reduces driving capability and increases risk-taking behaviour (McLellan *et al*., 1993; Anonymous, 1994; Edwards *et al*., 1994; Wagennar *et al*., 1995; Alvarez and Del Rio, 1996; Petridou *et al*., 1998).

In 1997, there were 328 000 casualties in RTAs, of which 16 800 (5%) involved illegal alcohol levels (Department of Environment, Transport and the Regions, 1999). Alcohol-related RTAs occurred at all times of the day, but they were particularly more frequent during the night and at weekends, and mainly involved young male drivers.

Deliberate self-harm

Prolonged alcohol misuse is associated with a number of psychological and psychiatric problems, although, in many cases, it is difficult to determine which actually came first. Of all suicides in England and Wales, 15–25% are associated with alcohol misuse, and almost 40% of men and 8% of women who attempt suicide are chronic problem drinkers (Morgan and Ritson, 1998). Suicides due to alcohol misuse can occur at all times, but they usually occur during the evening, and are of low suicidal intent (Blenkiron *et al*., 2000).

Violence and assaults

The burden on A&E departments of dealing with the aftermath of violence and assaults has increased significantly in the last 10 years (Shepherd and Rivara, 1998), and today contributes to ~2–3% of all new attendances (Wright *et al*., 1998). For at least half of these cases, there is a causal relationship with alcohol misuse, and drinking has been documented as a risk factor for both the perpetrator, as well as for the victim (Brismar and Bergman, 1998).

Men are twice as likely as women to be involved in alcohol-related violence, and the commonest place of assault is the street, even though women are more likely to be assaulted in their homes (Wright and Kariya, 1997). Fifty per cent of all the associated injuries are to the head and neck, and about a quarter of all victims need to be admitted into hospital (Wright and Kariya, 1997).

Alcohol has also been recognized as one of the major factors in verbal abuse and physical violence involving health professionals working in A&E departments (Cembrowicz and Shepherd, 1992; Jenkins *et al*., 1998). Inner city departments appear to be most affected, and nurses and male doctors are at the greatest risk of assaults. Nevertheless, the documentation of these incidences is very poor, and the perpetrators are seldom prosecuted (Jenkins *et al*., 1998).

THE ROLE OF A&E DEPARTMENTS IN THE MANAGEMENT OF PHYSICAL AND MENTAL HARM DUE TO ALCOHOL MISUSE

A&E departments are well placed in the health system to play a crucial role in the reduction of alcohol-related harm. However, the structural and attitudinal barriers to using A&E departments for screening and for the delivery of brief anti-alcoholic interventions (Rowland *et al*., 1988; Waller *et al*., 1998; Herring and Thom, 1999; Thom *et al*., 1999) need to be overcome and a holistic approach by A&E staff to the effective management of alcohol misusers needs to be adopted. The holistic approach must involve three equally important levels of patient care, which will include the management of: (1) the acute health problem that brought the patient to the A&E department; (2) any possible underlying physical or mental chronic health problems due to alcohol misuse; and (3) any possible underlying drinking problems (Fig. 2).

An efficient method is required to enable A&E healthcare professionals to identify and manage effectively an alcohol misuser at all levels, in a short period of time and in a relatively inexpensive way.

Level 1. Management of the presenting, acute health problem

Problem drinkers can attend an A&E department with any of a great diversity of symptoms, ranging from trivial presentations, such as abdominal discomfort and minor injuries, to extremely serious and life-threatening ones, such as gastrointestinal bleeding, cardiac arrhythmias, attempted suicides, and serious

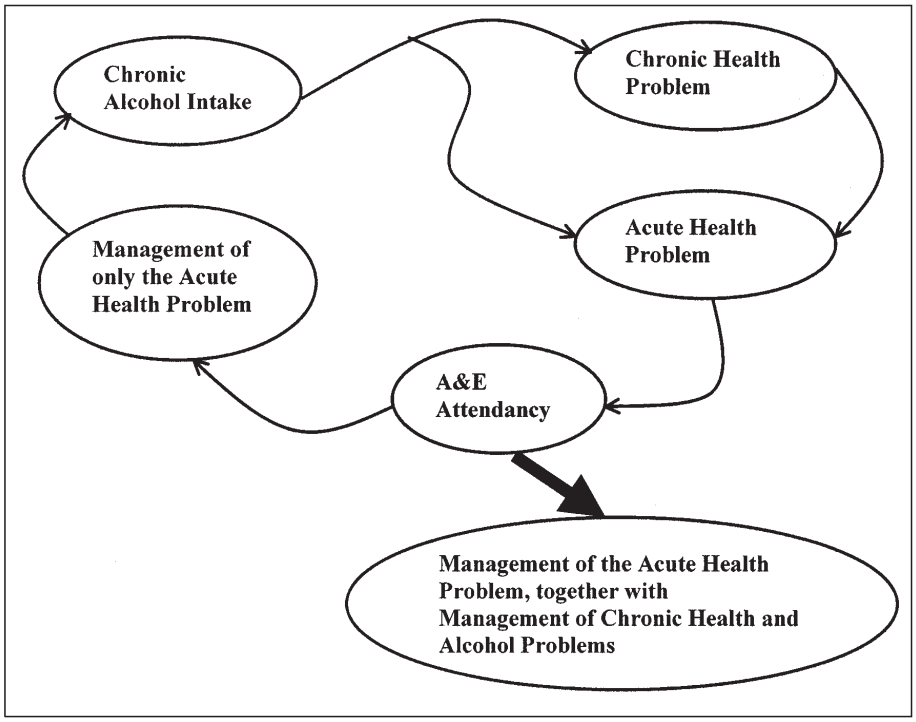

Fig. 2. Alcohol-related problems and their management by the Accident and Emergency department.

RTAs (Beaglehole and Jackson, 1992; Morgan and Ritson, 1998). It is therefore essential that a full and thorough assessment of the acute health problem and its severity is immediately carried out, and then either the appropriate treatment in the A&E department, or referral to a speciality medical or surgical team is made. Currently, this is the only level of management of alcohol-related acute ill-health that is carried out by many A&E departments (Dennis *et al*., 1997; Peters *et al*., 1998; Waller *et al*., 1998), and although it effectively treats the presenting complaint, it fails to identify and hence provide the appropriate management for any underlying chronic health or drinking problems (Touquet *et al*., 1998; Wright *et al*., 1998).

Level 2. Management of any underlying physical and mental health problems

A significant proportion of A&E attendances due to alcohol misuse are merely a precipitation of an underlying chronic health problem, which is the result of excessive drinking. Long-term alcohol misuse can affect any organ in the body, and problem drinkers are particularly prone to a variety of medical conditions, including infections (Adams and Jordan, 1984; Bergman and Gleckman, 1988), malignancies (Blot, 1992; Seitz and Poschl, 1997), hepatic (Ishak *et al*., 1991), cardiovascular (Beaglehole and Jackson, 1992), neurological (Charness *et al*., 1989), musculoskeletal (Martin *et al*., 1985; Reilly *et al*., 1994), dermatological (Higgins and DuVivier, 1994) and psychiatric (Dennis *et al*., 1997; Cryer *et al*., 1999) illnesses. Therefore, a vital aspect in the management of people presenting to an A&E department with acute, alcohol-related harm is that any underlying chronic physical or mental health problems are identified by A&E staff and the appropriate referrals to specialists are made. Failure to do so can be considered as negligence on the part of the healthcare professional (Wright *et al*., 1998).

Currently, many A&E staff do not seem to recognize their role for this level of management of problem drinkers (Rowland *et al*., 1988; Dennis *et al*., 1997; Peters *et al*., 1998; Waller *et al*., 1998; Thom *et al*., 1999). A significant portion of alcohol-related attendances are discharged directly home by A&E medical staff without being admitted into hospital, or being appropriately referred for specialist assessment (Dennis *et al*., 1997). In particular, at nights, A&E staff are far more likely to discharge a patient home themselves, than refer for specialist assessment (Dennis *et al*., 1997).

Level 3. Management of the drinking problem

A&E departments provide an excellent base for screening patients for alcohol misuse and for the delivery of brief anti-alcoholic interventions (Peters *et al*., 1998; Wright *et al*., 1998; Thom *et al*., 1999), which can be extremely valuable in decreasing alcohol-related harm.

Screening. A detailed, quantitative alcohol history can be obtained from every patient attending an A&E department, and in particular from patients who seem to be under the influence of alcohol, or who have an unexplained, underlying cause of their acute presentation. Nevertheless, this cannot be appropriate in an emergency hospital setting because this can be a relatively time-consuming process, with moderate sensitivity and specificity of detecting hazardous or harmful alcohol use, as most alcohol misusers tend to deny their drinking habits.

Several studies have demonstrated the importance of finding and using a screening instrument (that can be administered quickly and be easily incorporated into routine hospital procedures) for the effective identification of patients with alcohol-related harm (Rowland and Maynard, 1987; Barrett and Vaughan Williams, 1989; Smith *et al*., 1996; Thom *et al*., 1999). In the last few years, a number of screening questionnaires have been developed and used in some A&E departments, with extremely promising results (Conigrave *et al*., 1995; Wright *et al*., 1998; Harnett *et al*., 1999; Thom *et al*., 1999).

The Alcohol Use Disorders Identification Test (AUDIT) was published in 1989 by the World Health Organization, and it consists of a brief, 10-item screening questionnaire (Babor *et al*., 1989), including questions on quality and frequency of alcohol consumption, drinking behaviour and alcohol-related problems or reactions. It takes ~2 min to be completed and scored, and it is specifically designed to identify people with 'hazardous' or 'harmful' drinking, before physical dependence or chronic physical and psychosocial problems develop. It is therefore a useful tool for the effective screening of patients in A&E departments (Conigrave *et al*., 1995; Thom *et al*., 1999).

The Paddington Alcohol Test (PAT) has been specifically developed to provide an effective but practical screening questionnaire for use by A&E staff to detect alcohol misuse at an early stage, without unreasonably prolonging patient waiting times (Smith *et al*., 1996). This questionnaire consists of three compulsory questions and takes only 1 min to complete and score, but it can significantly increase the detection and hence referral rates of alcohol-misusing patients by A&E staff (Smith *et al*., 1996; Thom *et al*., 1999).

Other screening questionnaires, such as the Michigan Alcoholism Screening Test (MAST) (Selzer, 1971), and the CAGE (Mayfield *et al*., 1974; Ewing and Rouse, 1984), have proved to be effective in detecting alcohol dependence, but their use in A&E departments still needs to be evaluated.

A number of laboratory investigations can be used in the identification of problem drinking, such as γ-glutamyltranspeptidase (GGT), carbohydrate-deficient transferrin (CDT), aspartate and alanine aminotransferases (AST, ALT), and mean cell volume (MCV). Nevertheless, these tests are relatively time-consuming and with a substantial cost, and have not been proved superior to the screening questionnaires in the detection of alcohol-misusing patients. Therefore they are mainly used in primary care for the monitoring of long-term alcohol management and the early detection of relapse, and are seldom used in A&E departments (Conigrave *et al*., 1995; Allen and Litten, 2001).

Brief anti-alcoholic interventions. Opportunistic screening of alcohol-related attendances by A&E staff is of little use, unless it is followed by uptake of a health intervention (Peters *et al*., 1998). Anti-alcoholic interventions can be of a variety of forms, but they all aim at effectively targeting the patient to help him/her recognize his/her drinking problem and the need for help. The benefits of brief anti-alcoholic interventions in the management of people who are at the early and critical stage of alcohol misuse (Paton, 1994; Wright *et al*., 1998) have been well documented both in the A&E department (Wright *et al*., 1998), as well as in general practice (Wallace *et al*., 1988) and in hospital settings (Chick *et al*., 1985).

In a recent study, involving an inner-city A&E department, a nurse specialist in alcohol-related problems (an Alcohol Health Worker, AHW) was employed to provide all the necessary brief interventions to patients with problem drinking (Wright *et al*., 1998). These included counselling of patients, provision of liaison with specialist services (e.g. Alcohol Treatment Units, Alcoholics Anonymous, Councils on Alcohol, Alcohol Advice Centres), and support to the medical and nursing staff of the department. The patients who visited the department with alcohol-related problems during the study and were referred to the AHW, were subsequently followed up and, 6 months later, a significant reduction in the level of alcohol consumption was observed in both dependent and hazardous drinkers. Moreover, the presence of an AHW in the department facilitated on-going education, encouragement and feedback about alcohol-related problems for all staff, and helped to change the perceptions of A&E staff about the management of alcohol-related attendances (Wright *et al*., 1998).

GENERAL CONCLUSIONS AND COMMENTS

A&E departments are well placed in the health system to play an important role in the reduction of alcohol-related harm. Currently, the role of many A&E departments is restricted to the effective management of the presenting emergency complaints of alcohol misusers, and hence they fail to recognize and provide appropriate management for any underlying chronic health or drinking problems and so break the vicious cycle that chronic drinkers find themselves in (Fig. 2).

Various studies have demonstrated that it is possible to screen and respond positively within A&E settings to problem drinking, even though particular structural and attitudinal barriers to adopting such a role by A&E departments exist.

The structure of the organization of A&E departments and the nature of care provided present difficulties for staff expected to respond to an increasing range of preventive activities (Thom *et al*., 1999). One main factor is the time required to screen patients for alcohol misuse, and it is important that a screening instrument that can be applied speedily within routine A&E procedures is developed and incorporated widely into the activities of the A&E department. The AUDIT and the PAT have both shown very promising results in the quick and sensitive identification of problem drinkers, and their incorporation into routine A&E history-taking may be of significant value. Nevertheless, opportunistic screening of alcohol-related attendances by A&E staff must always be followed by a brief anti-alcoholic intervention. This can be any of a variety of forms, including counselling, referral to a specialist or to an AHW and referral to appropriate alcoholic organizations and involvement of the social services.

Future research on the issue must focus on exploring various ways by which the structural and attitudinal barriers of incorporating A&E departments into alcohol prevention can be overcome. Moreover, the effectiveness of an AHW in the department needs to be further evaluated, as well as the levels of alcohol awareness and knowledge of A&E staff.

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