

# Alcohol dependence and treatment strategies

**Alcohol misuse and dependence is a major health and social issue worldwide. This review addresses alcohol dependence, the current approaches to treatment and some methods for trying to prevent relapses.**

The use of alcohol for social and leisure purposes has been known in human history since ancient times. The benefits have often been overshadowed by the harm it causes to so many in society. It is estimated that 27% of men and 15% of women drink more than the recommended number of units per week, placing themselves at increased risk of developing health or social problems (Office of National Statistics, 2000). Alcohol misuse costs the NHS up to £3 billion a year on hospital services alone (Royal College of Physicians, 2001). In Britain 1 in 13 adults are dependent on alcohol (Office of National Statistics, 2002). Services exist in both the NHS and voluntary sector that provide help and support but these can vary and there are significant gaps in provision.

Alcohol dependence syndrome was first described by Edwards and Gross (1976) and the criteria for diagnosis has been incorporated into the *International Classification of Diseases* (ICD) 10 (World Health Organization, 1992) classification system (Table 1).

## Services that provide alcohol treatments

Specialist alcohol services are provided by the statutory, non-statutory (voluntary or non-profit organizations)

**Table 1. International Classification of Diseases (ICD) 10 criteria for alcohol dependence syndrome**

Three or more of the following in the last year:
Strong desire or compulsion to drink
Difficulty controlling drinking behaviour, e.g. levels of use
Development of tolerance
Physiological withdrawal symptoms on cessation
Prioritization of drinking behaviour
Continued drinking despite negative consequences

From World Health Organization (1992)

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and private sector. The provision of these services is variable, with some areas having a wide range of treatments available and others having little in the way of specialist help. Services are provided in a number of different settings including day services, residential services, hospitals, primary care and self-help groups. Statutory services can be delivered by specialist community alcohol teams, as part of community mental health teams or by liaison alcohol workers in hospital settings. The National Alcohol Harm Reduction Strategy (Department of Health, 2004) called for a needs assessment and mapping of services, the results of which are awaited.

## Treatment aims

Patients presenting to alcohol services are a heterogeneous group. Treatment aims depend on a number of factors including the severity of problem, abuse or dependence, the patient's goals and motivation to change. Approaches range from brief interventions for hazardous drinkers to management of alcohol withdrawal, harm reduction approaches, relapse prevention with multiple psychosocial approaches, and management of co-morbid psychiatric and/or medical problems. The treatment offered to an individual patient should result from a comprehensive assessment including his/her motivation to make changes. A stepped care approach appears intuitively sensible where the patient's wishes and needs are matched with an appropriate available treatment.

## Management of alcohol withdrawals and prevention of complications

### Alcohol detoxification

Detoxification or 'the planned assisted withdrawal from alcohol using medication' is required for most patients with alcohol dependence syndrome if they wish to stop drinking. This is usually an elective procedure and can be performed in a number of settings: community or home detoxification, day hospital or as inpatients in a medical or psychiatric ward. The patient's health and social circumstances will dictate where the detoxification can be safely delivered (Table 2). However, there is a paucity of specialized inpatient detoxification services.

Repeat episodes of detoxification are associated with an increased withdrawal severity, rate of complications

and with cognitive impairment (Schuckit et al, 1995), thus successive detoxifications without a clear plan, e.g. a period of abstinence, are not recommended.

### Detoxification regimens

Studies comparing different benzodiazepines show that they are equally efficacious in reducing the signs and symptoms of withdrawal (British Association of Psychopharmacology, 2004). Shorter-acting drugs, e.g. lorazepam, may be more suitable in those with liver failure, the longer-acting drugs tend to be more effective in preventing seizures. Withdrawal severity varies widely and the amount of medication needed to contain symptoms also varies. There is no standard dosing regimen for all patients; however, a typical regimen for an uncomplicated detoxification is chlordiazepoxide 20 mg four times daily reducing over 7 days to nil. Complete symptom suppression can be achieved by using chlordiazepoxide as required in the first 48 hours (British Association of Psychopharmacology, 2004).

In intoxicated patients with incipient withdrawals medication is not usually given until either the blood alcohol levels start to decrease or withdrawal symptoms become apparent so as to minimize the risks of oversedation and increased confusion.

Other regimens include front loading where a bolus of diazepam is given at the start until light sedation is achieved and then no further diazepam is given, as its long half-life covers the withdrawals. A symptom-triggered regimen can be used where benzodiazepines are given in response to emerging symptoms. Skilled monitoring for oversedation and breakthrough withdrawals is needed for both regimens.

Chlormethiazole is no longer recommended for outpatient detoxifications because of the danger of respiratory depression when used with alcohol, and its addictive potential. Carbamazepine is used outside the UK for alcohol detoxification. There is evidence that it is effective in reducing withdrawal symptoms (Williams and McBride, 1998) and it is not contraindicated in liver failure.

### Withdrawal seizures

The incidence of withdrawal seizures is reported as between 1 and 15% in alcohol-dependent individuals (British Association of Psychopharmacology, 2004).

#### Table 2. Reasons to consider inpatient detoxification

Lives alone and/or has poor social supports
Previous history of complications, i.e. seizures or delirium
Previous failed community detoxification
Serious medical or psychiatric illness

From British Association of Psychopharmacology (2004)

The likelihood of having a seizure increases after the first one and this is thought to be caused by a kindling process.

Hillbom et al (2003) reported on the efficacy of different drugs in preventing seizures and found that both benzodiazepines (especially long-acting ones) and anti-convulsants reduced the seizure rate significantly. There was no added benefit of using both drugs together. Anticonvulsants commenced to prevent alcohol withdrawal seizures should not be continued after the detoxification.

### Delirium tremens

There is little evidence on the efficacy of medication in the prevention or treatment of delirium. The evidence suggests that longer-acting benzodiazepines are more effective in reducing the incidence of delirium, with extra diazepam used in treatment as required. Low-dose antipsychotic medication has been used successfully on the first signs of confusion to reduce the distress or agitation experienced; however, there is a risk of increased incidence of seizures (British Association of Psychopharmacology, 2004). Environmental measures,

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e.g. a quiet room, appropriate lighting, repeat orientation and a high level of nursing care, may well be more efficacious.

### Vitamin replacement

Factors such as poor diet and malabsorption mean that individuals with alcohol dependence are at increased risk of vitamin deficiencies. Thiamine (vitamin B<sub>1</sub>) deficiency causes Wernicke's encephalopathy, a syndrome characterized by the classic triad of ataxia, confusion and nystagmus. This triad is only present in 10% of patients with Wernicke's encephalopathy and so a high index of suspicion is required to diagnose the condition. Wernicke's encephalopathy is initially reversible with treatment, but if untreated can result in irreversible brain damage (Korsakoff's syndrome) in over 80% of survivors and has a significant mortality rate of around 20% (Cook et al, 1998).

The Royal College of Physicians (2001) made recommendations on the treatment of possible vitamin deficiencies in those at low or high risk, or those with incipient Wernicke's encephalopathy. For healthy, uncomplicated alcohol-dependent patients, i.e. those at low risk, oral replacement thiamine can be given. The

current recommendation is thiamine 200 mg four times daily for the duration of the detoxification. This can be continued after the detoxification at 50 mg four times daily if there is evidence of cognitive impairment or poor diet.

Malnourished patients and those with a poor diet, i.e. high-risk patients, and those diagnosed with or suspected of having Wernicke's encephalopathy, require parenteral thiamine. Oral supplements are not absorbed in sufficient amounts to replenish depleted stores. For patients at high risk, Pabrinex (parenteral thiamine, Link Pharmaceuticals, Horsham, West Sussex) 250 mg, i.e. one pair of ampoules, intramuscularly or intravenously (IV) daily for 3–5 days is recommended. If Wernicke's encephalopathy is suspected or diagnosed then 500 mg, i.e. two pairs of Pabrinex ampoules, should be given 3 times daily for 3 days followed by one pair of ampoules daily for up to another 5 days depending on response (Royal College of Physicians, 2001).

Pabrinex is associated with a small risk of anaphylaxis and thus resuscitation facilities are required. This has

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resulted in some reluctance to administer IV Pabrinex and the inappropriate use of oral thiamine. However, this small risk must not be seen to outweigh the benefits of appropriate treatment.

### **Prevention of relapse**

Preventing relapse is the crucial stage of managing alcohol dependence. The risks of relapse are significant, especially immediately after a detoxification. The approach is multimodal, including specific psychological therapies, pharmacotherapy, residential rehabilitation and the self-help group Alcoholics Anonymous.

### **Psychosocial interventions**

A variety of psychosocial treatments have been used in the treatment of alcohol abuse and dependence with their efficacy reviewed by many authors (Holder et al, 1991; Miller and Wilbourne, 2002). These include:

- Motivational enhancement therapy
- Cognitive behavioural therapy (CBT)
- Family therapy approaches
- Coping skills

- Social skills
- 12-step facilitation.

In some centres in the US, these therapies are delivered by adhering strictly to a therapy manual. More often in the UK, they are delivered in a hybrid or adapted form including aspects from a number of approaches. The Mesa Grande study by Miller and Wilbourne (2002) examined the effects of different therapies on alcohol problems; they found positive outcomes for a number of approaches including social skills training, behavioural marital therapy and community reinforcement. A meta-analysis by the Health Technology Board in Scotland (Slattery et al, 2003) also reviewed evidence on psychosocial interventions and found similar efficacies. Furthermore there is no clear evidence that matching the therapy to the individual's characteristics has a better outcome (Project MATCH Research Group, 1998).

### **Medication in relapse prevention**

Acamprosate (Campral, Merck Pharmaceuticals, West Drayton, Middlesex) inhibits glutamatergic N-methyl-D-aspartate (NMDA) receptor function, which is upregulated in alcohol dependence, and is thought to work by reducing the urge or craving to drink alcohol. It is a well-tolerated drug and when combined with psychosocial treatments has been shown to be better than placebo in trials with outcomes including longer periods of abstinence, improved gamma-glutamyl transpeptidase and retention in treatment (British Association of Psychopharmacology, 2004). These benefits seem to continue even on cessation of acamprosate. Acamprosate with CBT has been shown to be superior to CBT alone. Pre-clinical data appear to suggest that acamprosate may have neuroprotective properties (Koob et al, 2002). It is thus commenced at the start of the detoxification or soon after.

Disulfiram (Antabuse, Alparma, Barnstaple, Devon) has been extensively used although there are few trials examining its efficacy. Disulfiram acts by blocking the enzyme aldehyde dehydrogenase in the metabolism of alcohol. Patients need to be counselled regarding the dangers of drinking while taking disulfiram and advised to avoid everyday products which contain alcohol, e.g. aftershave or mouthwash. Evidence suggests a positive effect only if its use is supervised (Chick et al, 1992). Disulfiram implants are sometimes used although there is no evidence to support their use (British Association of Psychopharmacology, 2004).

Naltrexone is an opioid antagonist and has been used in relapse prevention as an adjunct to psychosocial interventions. It is not licensed for use in alcohol dependence in the UK. A Cochrane review (Srisurapanont and Jarusuraisorn, 2003) concluded that naltrexone 50 mg was effective in the short-term treatment of alcohol dependence in improving drinking outcomes but was no better than acamprosate or disulfiram. It is not as well

tolerated as acamprosate and cannot be used in those taking opioids. The effects also appear to be lost within weeks of discontinuation.

## Comorbidity

Mental health problems often coexist with alcohol dependence. Increased rates of depression, anxiety and personality disorders are frequently reported. The presence of alcohol dependence will impact on psychiatric issues such as the increased risk of suicide, self-harm behaviours and aggression. The presence of psychiatric symptoms and/or disorders affects the onset, clinical course, compliance with treatment and prognosis of alcohol dependence (McLellan et al, 1993). These factors need to be taken into account when planning treatment. Patients can present on a spectrum from mild to severe comorbid mental illness and their management involves effective liaison between primary care, psychiatric and addictions services.

A significant proportion of alcohol-dependent patients also smoke cigarettes. Help and advice to quit should be given as there is equal efficacy of nicotine replacement therapies in those with a history of alcohol dependence as those without.

## Conclusions

Alcohol dependence is a major health issue with significant morbidity and mortality. There are efficacious treatments available that are best delivered as adjuncts to each other. Engaging and retaining patients in services is an ongoing challenge. The National Alcohol Harm Reduction Strategy (Department of Health, 2004) and the consultation document now available on models of care for alcohol (National Treatment Agency for Substance Misuse, 2005) begin to highlight the need for development of services for those who abuse and are dependent on alcohol. Training needs for all professionals who encounter alcohol-dependent patients on a frequent basis, especially all branches of medicine, must be addressed. **BJHM**

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## KEY POINTS

- In Britain 1 in 13 people have alcohol dependence syndrome.
- Assessing motivation to change drinking behaviour is an integral part of the assessment process.
- The patient's needs and goals are the basis of planning appropriate treatment.
- Benzodiazepines are efficacious in managing withdrawals and prevention of complications during alcohol detoxification.
- High-risk patients and suspected cases of Wernicke's encephalopathy require prompt treatment with parenteral thiamine.
- Acamprosate is well tolerated, has been shown to increase length of abstinence and has probable neuroprotective effects.
- Psychosocial interventions are the mainstay in prevention of relapse and can be delivered in a variety of settings.