Alcohol misuse and dependence

Assessment and management

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BACKGROUND General practitioners play a vital role in the prevention of alcohol related morbidity and mortality. The earlier an alcohol problem is diagnosed, the better the treatment outcome.
OBJECTIVE This article aims to provide GPs with practical guidelines on the assessment and management of patients with hazardous alcohol use and dependence.
DISCUSSION There is good evidence that early and brief intervention by a GP is most effective in reducing alcohol consumption in patients with hazardous or harmful drinking. In patients with alcohol dependence, pharmacotherapies such as naltrexone and acamprosate, in conjunction with a comprehensive rehabilitation program, are beneficial in a proportion of patients.

What is problem drinking?

'Problem drinking' or 'alcohol misuse' are umbrella terms that cover injurious patterns of alcohol consumption that range from risky or hazardous drinking, harmful drinking, and alcohol abuse through to the most severe form of the disorder, alcohol dependence. Risky or hazardous drinking is a pattern of alcohol consumption that places one at risk of harm. For men this is drinking more than four standard drinks (>40 g alcohol/day) regularly and for women more than two standard drinks (>20 g alcohol/day) regularly. Standard drink measurements are outlined in Table 1. Among general practice patients, 20–30% of men and approximately 10% of women fit into these categories.

Binge drinking (drinking six or more drinks in a session for men and four or more for women) is also hazardous and is associated with an increased risk of acute illness, trauma, domestic violence and other social and domestic problems.[1]

Harmful alcohol consumption is a term that is used to denote a hazardous pattern of consumption that is causing actual harm, be it physical or psychosocial. Ten percent of men and 2% of women fit into this category.

Table 1. Standard drinks

One standard drink, approximately 10 g alcohol, is equivalent to:

1 nip (30 mL) Spirits (37–40%)	1 serve (60 mL) Fortified wine (18–20%)	1 glass (120 mL) Table wine (12%)	1 middy (285 mL) Standard beer (4–5%)	2 middies (570/425 mL) Low alcohol beer (2–3%)

Alcohol dependence, the most severe form of alcohol misuse, is a psychobiological syndrome that reflects neuroadaptive changes in the brain. It occurs in people whose alcohol consumption typically exceeds 120 g/day (men) and 80 g/day (women). However, it is not primarily defined by the level of intake, more by the presence of the following factors:

- impaired control over drinking
- subjective awareness or compulsion to drink ('craving')
- drinking as a central feature of the person's life
- increased tolerance to alcohol
- withdrawal symptoms on cessation of drinking
- avoidance of withdrawal by further drinking
- persistent drinking despite evidence of harm.

It is typically associated with physical and psychosocial complications of alcohol misuse. The presence of three or more of the criteria occurring repeatedly for one year or more indicates alcohol dependence.

Assessment

Assessment is the first step in the diagnosis and management of problem drinkers and is in itself a therapeutic intervention. Good assessment is essential for quality care of patients and best treatment outcomes.

Alcohol intake history

As patients may deny or underestimate the amount they drink, the GP should establish a good therapeutic relationship with the patient. Introduce drinking as part of a lifestyle assessment. Show empathy and understanding and be nonjudgmental, watch body language and respond to cues. Where possible seek corroborative information from the partner or family and involve them in the patient's management.

Inquire about smoking (number of cigarettes per day) and sedative-hypnotic use, which commonly co-exist with problem drinking. It may be appropriate to ask about illicit drug use, depending on the age of the patient. A systematic alcohol history should include:

- quantity of alcohol intake, in grams standard drinks per day or per week
- duration of alcohol misuse
- time of last drink
- periods of abstinence, and
- any withdrawal symptoms on cessation of drinking.

Establish whether the pattern of drinking is regular or binge type.

Clues to underlying alcohol misuse

The reason for the patient presenting often gives clues to underlying alcohol misuse. Patients may not volunteer information about their drinking and may not seek help until the problem has become serious. In the early stages of alcohol dependence, patients may be asymptomatic or present with vague nonspecific symptoms such as tiredness, dyspepsia, anorexia, nausea and vomiting, diarrhoea, headaches, anxiety or depression. They may present with asymptomatic hypertension, falls or injuries. Repeated requests for medical certificates should raise a high index of suspicion. Family members may present with multiple nonspecific complaints.

Clinical examination

There are no obvious signs in the early stages of alcohol dependence and one needs to seek clues. Early signs include:

- conjunctival injection
- bloated face
- facial telangiectasia
- flushing
- periorbital puffiness
- bruises and signs of trauma.

Later stage signs include:

- signs of self neglect
- smell of alcohol on the breath
- scleral icterus
- coated tongue
- parotid swelling
- tremors
- sweaty palms
- palmar erythema
- pseudo-Cushingnoid facies, and
- Duptyrens contracture.

Diagnostic aids

Screening instruments

Alcohol Use Disorders Identification Test (AUDIT) (Table 2)

Scores from 8 to 12 indicate hazardous/harmful alcohol consumption. Scores of 13 or more indicate the likelihood of alcohol dependence.[3]

Table 2. WHO Audit questionnaire

Select an answer from the 10 questions below and add the total scores

1. How often do you have a drink containing alcohol?

[0] Never | [1] Monthly or less | [2] 2–4 times a month | [3] 2–3 times a week | [4] 4 or more times a week

2. How many standard drinks containing alcohol do you have on a typical drinking day?

[0] 1 or 2 | [1] 3 or 4 | [2] 5 or 6 | [3] 7, 8 or 9 | [4] 10 or more

3. How often do you have six or more standard drinks on one occasion?

[0] Never | [1] Less than monthly | [2] Monthly | [3] Weekly | [4] Daily/almost daily

4. How often in the past 12 months have you found that you were not able to stop drinking?

[0] Never | [1] Less than monthly | [2] Monthly | [3] Weekly | [4] Daily/almost daily

5. How often during the past 12 months have you failed to do what was normally expected from you because of drinking?

[0] Never | [1] Less than monthly | [2] Monthly | [3] Weekly | [4] Daily/almost daily

6. How often in the past 12 months have you needed a first drink in the morning to get yourself going after a heavy drinking session?

[0] Never | [1] Less than monthly | [2] Monthly | [3] Weekly | [4] Daily/almost daily

7. How often during the past 12 months have you had a feeling of guilt or remorse after drinking?

[0] Never | [1] Less than monthly | [2] Monthly | [3] Weekly | [4] Daily/almost daily

8. How often in the past 12 months have you been unable to remember what happened the night before because you had been drinking?

[0] Never | [1] Less than monthly | [2] Monthly | [3] Weekly | [4] Daily/almost daily

9. Have you, or someone else been injured as a result of your drinking?

[0] No | [2] Yes but not in the past 12 months | [4] Yes, during the past 12 months

10. Has a relative or friend, doctor or another health worker been concerned about your drinking or suggested you cut down?

[0] No | [2] Yes but not in the past 12 months | [4] Yes, during the past 12 months

The CAGE questionnaire (Table 3)

Scores of 2 or more on the CAGE questionnaire indicate alcohol dependence.[4]

Table 3. CAGE questionnaire

Have you ever felt you ought to **C**ut down on your drinking?

Have people ever **A**nnoyed you by criticising your drinking?

Do you ever feel bad or **G**uilty about your drinking?

Have you ever had to drink first thing in the morning to get rid of a hangover? (**E**ye opener)

Laboratory investigations

Laboratory investigations to assist in the detection of problem drinking are outlined in Table 4.

Treatment

Hazardous/harmful drinking

There is good evidence that early and brief intervention by a primary care physician significantly reduces alcohol consumption in hazardous/harmful drinkers (Table 5).[2]

Table 4. Laboratory investigations to detect problem drinking[5]

Laboratory test	Abnormal values	Interpretation
MCV	Macrocytosis (> 96 fL or >100 fL, depending on the laboratory normal range)	Detects approximately 20–30% of problem drinkers in a general practice setting and 40–50% in a hospital setting Specificity: 64–90%
GGT	Elevated GGT (>55 U/L or 65 U/L, depending on the laboratory normal range)	Detects approximately 30% of problem drinkers in a general practice setting and 70–75% in a hospital setting Specificity: 85–90% approximately
AST/ALT	Ratio >1.5	Alcoholic liver damage. Less sensitive than GGT or MCV. 10–30% sensitivity in a general practice setting, approximately 50% in a hospital setting Specificity: >90%
BAC	>0.05%	Above legal limit
CDT (carbohydrate deficient transferrin)		Elevated in 50–60% heavy drinkers; specificity: approximately 90% greater than GGT or MCV

Table 5. Treatment of hazardous/harmful drinking

Goal of treatment: Reduced or controlled drinking

The appropriate treatment is a brief intervention, comprising advice and some simple strategies to reduce hazardous drinking

It is a proactive strategy and involves:

- Provision of brief medical advice
  - Set goals for safe drinking according to NH&MRC recommendations for men and women
  - Present information on the consequences of hazardous drinking
  - Feedback evidence of harm and relate this to the patient's excess drinking
  - Outline benefits obtained from cutting drown drinking
  - Set strategies to overcome 'at risk' times
- Follow up and review progress (typically one session with one follow up)

The intervention takes only 4–5 minutes

Alcohol dependence

Treatment is less effective once alcohol dependence becomes established. Lack of patient compliance and high drop out rates, especially in the first month of treatment poses a major problem.

Alcohol dependent patients are likely to go into withdrawal 6–24 hours after the last drink. In some patients the withdrawal syndrome is mild and inconsequential; in others, it increases in severity over the first 48–72 hours and may progress to delirium tremens (DTs). Features of alcohol withdrawal reflect autonomic hyperactivity with sweating, tremor, tachycardia, hypertension, anxiety, agitation, nausea, vomiting and raised body temperature. In severe cases, clouding of consciousness, disorientation and hallucinations may occur and progress to DTs, especially if complicated by seizures.

Delirium tremens is characterised by severe tremor and sweating, agitation, disorientation, clouding of consciousness, confusion, hallucinations, paranoid delusions and cardiovascular collapse. It has a mortality rate of 10–15% if not diagnosed and treated appropriately.

Detoxification

Detoxification is a process that provides a safe withdrawal from alcohol. If the withdrawals are mild, detoxification may be attempted at home. Mild withdrawals may be nonmedicated. If the patient is showing mild withdrawals, a small dose of diazepam (5–10 mg 3–4 times a day reducing by

Table 6. Treatment of alcohol dependence

Goal of treatment: Abstinence (although this may not always be feasible)

Match treatment according to the individual patient's needs:

- Feedback evidence of harm (medical or psychosocial) associated with excess alcohol
- Explain what 'dependence' means, eg. that it is a chemical imbalance in the brain, is a chronic remitting and relapsing condition like hypertension or diabetes and how difficult it will be to 'control' one's drinking because loss of control is one of the criteria for dependence
- Offer detoxification: at home or as an in-patient. If there is a past history of severe withdrawals or seizures, or if there is concurrent illness, detoxification should be in hospital
- Pharmacotherapeutic agents: naltrexone (Revia), acamprosate (Campral) should be offered after a period of abstinence of about seven days, disulfiram (Antabuse) is prescribed as a last resort
- Identify 'at risk' times and develop coping strategies to overcome 'at risk' times
- Provide patient with a drink diary, self help booklets, educational pamphlets
- Encourage attendance at Al Anon self help groups
- Negotiate goals according to the patient's individual needs
- Reinforce commitment to stop drinking by a personal contract, incorporate motivational interviewing techniques
- Increase patient's self esteem
- Encourage a healthy life style with regular meals, exercise, thiamine, multivitamins
- Involve partner and family and advise them to attend Al Anon
- Explain that relapse does occur and not to be discouraged if it occurs
- Relapse prevention programs with supportive counselling, cognitive behavioural therapy, and rarely, psychotherapy maybe indicated
- Regular follow up to review progress, check drink diary and compliance with medication

Referral to a specialist drug and alcohol unit for shared care is recommended

5 mg a day to zero) for no more than one week may be helpful. Maintain adequate fluid balance and nutrition and prescribe thiamine 100 mg daily.

Home detoxification is not recommended for severe withdrawals or if there is a past history of DTs or withdrawal seizures, co-existing medical or psychiatric illnesses such as infections, pneumonia, pancreatitis, liver disease, head injury, depression with suicidal ideation, poly-substance use, pregnant women and for patients living alone without the support of friends or relatives.[6]

Table 6 outlines the steps to be taken in the treatment of alcohol dependence. In feeding back evidence of alcohol related harm, highlight and point out the harmful effects, eg. abnormal LFTs or macrocytosis. Explain that the goal of treatment should be abstinence at least until results return to normal. Normalisation of results on abstinence, or reduced drinking, becomes a strong motivational lever to cease harmful drinking. Simple motivational interviewing techniques based on the Procheska and DiClemente model may also be helpful. Many patients are not ready for abstinence. Such patients require continued advice and reinforcement of the harmful effects of alcohol on their health and wellbeing.

Pharmacotherapies for alcohol dependence

Pharmacotherapeutic agents are prescribed for alcohol dependent individuals only after the phase of acute alcohol withdrawal is over and at least seven days after the last drink. A comprehensive rehabilitation program with individual and family counselling, cognitive behavioral therapy, relapse prevention, coping skills, participation in self help groups such as Alcoholics Anonymous, psychosocial support as required with follow up to enhance compliance are essential for a successful treatment outcome.

Naltrexone (Revia)

Alcohol consumption is thought to produce a feeling of wellbeing brought about by the release of endorphins in the brain and stimulation of opiate receptors. This reinforces drinking of alcohol and ultimately leads to relapse. Naltrexone competitively blocks opioid receptors and reduces the reinforcing and rewarding effects of alcohol.

Double blind placebo controlled studies have shown that naltrexone 50 mg/day for three months significantly reduces the risk of relapse to heavy

drinking and the frequency of drinking.[7-9]

Side effects of naltrexone are generally mild. Approximately 10% of patients experience nonspecific, mainly gastrointestinal, symptoms. Naltrexone has the capacity to cause severe liver damage when given in excessive doses. Depression may occur. Liver function tests should be obtained before initiation of treatment and monitored as required.

Contraindications to naltrexone include opioid dependent patients, patients with chronic pain on opioid analgesics, acute hepatitis or severe liver disease, major psychiatric illness, untreated depression, and pregnancy. If a patient on naltrexone requires analgesia, nonopioid analgesics, or local/regional anaesthesia may be used. If elective surgery is planned, naltrexone should be ceased 72 hours before, so that opioid analgesics may be prescribed.

Acamprosate (Campral)

The precise mechanism action of acamprosate (calcium acetylhomotautinate) in humans is uncertain, but it predominantly suppresses excitatory glutaminergic neurotransmitters. Acamprosate is not metabolised significantly in the liver and is excreted unchanged in the urine. Accumulation of acamprosate may occur in patients with renal impairment. The elimination half life of acamprosate is between 13–28.4 hours.

Double blind controlled European studies have shown that oral acamprosate 333 mg 4–6 tablets/day in three divided doses is significantly superior to placebo in increasing periods of abstinence, preventing relapse and improving outcomes.[7-9]

Side effects are generally mild and transient. Diarrhoea occurs in >10% but is reduced by taking medication with a meal. Others include pruritis, erythema, maculopapular rash and, rarely, bullous skin eruptions. Renal function tests and serum calcium levels should be monitored.

Contraindications include renal insufficiency (serum creatinine >120 micromol/L), hepatic failure, pregnancy or breastfeeding mothers.

Disulfiram (Antabuse)

Disulfiram was the mainstay of pharmacological treatment for alcohol dependence for 40 years, but has now largely been supplanted by naltrexone and acamprosate. Disulfiram acts by irreversibly inhibiting aldehyde dehydrogenase and leading to accumulation of acetaldehyde. This triggers an unpleasant reaction when alcohol is ingested and this acts as a psychological deterrent to drinking alcohol. Inhibition of enzyme activity occurs within 12 hours and lasts 5–6 days.

Side effects include flushing, headache, palpitations, dyspnoea, nausea, hypotension, and prostration when alcohol is ingested. It varies in intensity between individuals and usually occurs within 10 minutes of taking alcohol and reaches a peak at 20–30 minutes and last for 1–2 hours. This form of aversive therapy is effective in motivated and reliable patients who are well supported and who participate in a comprehensive rehabilitation program under close monitoring and supervision.

Contraindications include psychosis, ischaemic heart disease, severe renal, hepatic or renal disease and hypersensitiveto thiuram derivatives (pesticides, rubber). Patients need to abstain from alcohol for at least one day before administration of disulfiram and for at least one week after cessation of treatment. Disulfiram is currently available as 250 mg effervescent tablets. Initial dosing is 100 mg/day increasing to 250 mg/day for six weeks to six months as required.

Selective serotonin reuptake inhibitors (SSRIs)

The SSRIs are not effective in treating alcohol dependence. However, they are indicated for patients with persistent depression following alcohol detoxification.[8]

Ondansetron

Animal studies suggest that ondansetron, a 5HT3 antagonist, reduces alcohol intake by reducing dopamine activity and the rewarding effects of dopamine. A preliminary study on early onset alcohol dependent males showed ondansetron significantly reduced alcohol consumption in the subgroup.[10] Further studies are required and at present it is not approved in Australia for the treatment of alcohol dependence.

Conclusion

Alcohol is second only to tobacco as a cause of substance induced morbidity and mortality. It is a risk factor for many cancers, liver disease, road fatalities, homicides and suicides. As one in five patients who visit a GP drink alcohol at hazardous levels, GPs play a unique and vital role in early identification and prevention of alcohol related harm.

Conflict of interest: none declared.

SUMMARY OF IMPORTANT POINTS

- Among general practice patients, 20-30% of men and approximately 10% of women are 'problem drinkers'.
- Alcohol dependence is a psychobiological syndrome that reflects neuroadaptive changes in the brain.
- Good assessment is essential for quality care of patients and best treatment outcomes.
- Scores from 18 to 12 indicate hazardous/harmful alcohol consumption. Scores of 13 or more indicate the likelihood of alcohol dependence.
- Scores of 2 or more on the CAGE questionnaire indicate alcohol dependence.
- Psychosocial support is essential for a successful treatment outcome.

REPRINT REQUESTS

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