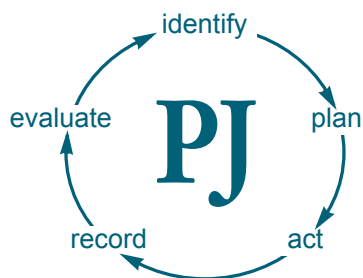


ALCOHOL MISUSE — A CASE STUDY

By Pamela Mason, PhD, MRPharmS

Research conducted this year by the charity Turning Point indicated that 3.8 million people in England and Wales (three million men and 800,000 women) are dependent on alcohol. This is six times as many people as are dependent on Class A drugs. The study also showed that every day 13 people die as a result of alcohol misuse. This case study looks at how pharmacists can help



identify gaps in your knowledge

Can you answer all the questions presented by Mary's case, outlined below?

Before reading on, think about how this article may help you to do your job better. The Royal Pharmaceutical Society's areas of competence for pharmacists are listed in "Plan and record" (available at: www.rpsgb.org.uk/education). This article relates to "common disease states and their drug therapies", "effects of lifestyle on health" and "health education and promotion" (see appendix 4 of "Plan and record").

Mary comes into the pharmacy with her two young daughters, to pick up her insulin. She says she has had to start collecting the children from school. Her husband Rob usually fetches them but, last week, a neighbour told Mary that she had seen the children walking home by themselves. Mary says that she suspects Rob is drinking too much. He has always enjoyed a pint but, during the past year, it has become more than that. Sometimes Rob smells of drink when she gets in from work and he often fails to do things he has promised to do. She had put it down to depression because Rob is out of work but now she is really beginning to wonder.

WHAT ARE THE POSSIBLE SYMPTOMS OF ALCOHOL MISUSE?

A person with an alcohol problem may smell of drink and have puffy, blood-shot eyes and a florid complexion, but this is not always the case. A wide range of physical and psychological symptoms can indicate alcohol misuse, including irritability, mood swings, anxiety, insomnia, poor memory or concentration, accidents or injuries and evidence of self-neglect. Social indicators include missed appointments, problems at work (eg, absenteeism and declining work standards) and unemployment. Financial difficulties are also common. Marital problems, domestic violence, child abuse or behavioural disturbance in children are also indicators of alcohol misuse, and partners and children may suffer from depression or anxiety associated with living with a problem drinker. Many of these symptoms, however, are not specific to alcohol and can indicate other conditions. Alcohol misuse is therefore difficult to diagnose, although blood tests can identify heavy drinkers. Despite the uncertainties, pharmacists should be aware of symptoms that could point to alcohol misuse to help ensure it is not overlooked.

WHAT ARE THE SENSIBLE LIMITS FOR ALCOHOL INTAKE?

One unit of alcohol is 8g or 10ml of pure alcohol. Sensible limits for alcohol consumption are that men should not drink more than three to four units of alcohol per day and women should drink no more than two to three units per day. These daily limits apply whether people drink every day or occasionally. A recent MORI poll showed that only 7 per cent of men and 22 per cent of women know the recommended alcohol allowance and binge drinking has been blamed for a large increase in deaths from cirrhosis in the United Kingdom.

Women who are pregnant or are trying to conceive should drink no more than one or two units a week, but preferably none. Panel 1 shows the number of units of alcohol in some common drinks.

The World Health Organization (WHO) guidelines (adapted for the UK)¹ identify "harmful alcohol use" and dependence as diagnostic features of alcohol misuse. Harmful alcohol use is defined as an intake of over 28 units of alcohol per week for men and over 21 units a week for women or situations where using alcohol has led to physical harm, psychological harm or harmful social consequences (eg, loss of job). Alcohol dependence exists when three or more of the following are present: a strong desire or compulsion to consume alcohol, difficulty controlling alcohol consumption, withdrawal symptoms when drinking is stopped, tolerance to large amounts of alcohol and continued consumption despite harmful consequences.

HOW IS ALCOHOL METABOLISED?

Alcohol is rapidly absorbed from the gastrointestinal tract, mainly from the stomach (20 per cent) and small intestine (80 per cent). It is converted, principally by oxidation, to acetaldehyde. This reaction is catalysed by the enzyme alcohol dehydrogenase. However, some alcohol is metabolised to acetaldehyde by cytochrome P450 in the liver. Acetaldehyde is then converted to acetate (mainly in the liver mitochondria), which is released into the blood and oxidised by peripheral tissues to carbon dioxide, fatty acids and water.

Generally, for equivalent consumption of alcohol, men achieve lower blood-alcohol concentrations than women. This difference is thought to be due to the lower proportion of body fat and the higher proportion of body water in men compared with women. Alcohol is water-soluble and a higher volume of water increases the volume of distribution of alcohol, resulting in lower blood levels. However, following intravenous administration, both men and

PANEL 1: UNITS OF ALCOHOL IN DRINKS

- One pint of ordinary strength lager (eg, Carling Black Label, Fosters, Heineken), bitter (eg, Boddington's, John Smith's) or ordinary strength cider contains two units of alcohol
- One pint of strong lager (eg, Stella Artois, Kronenberg 1664) contains three units
- A 175ml glass of red or white wine contains about two units
- A standard small measure of port or sherry contains one unit
- A public house measure of spirits contains one unit
- An alcopop (eg, Bacardi Breezer) contains about 1.5 units

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PANEL 2: CONDITIONS ASSOCIATED WITH ALCOHOL ABUSE

Gastrointestinal system

- Gastro-oesophageal reflux
- Acute gastritis
- Oesophageal varices
- Oral cancer and cancer of the oesophagus or large bowel
- Pancreatic disease
- Liver disease (eg, fatty degeneration of cells, acute alcoholic hepatitis, cirrhosis, hepatocellular carcinoma)

Cardiovascular system

- Alcoholic cardiomyopathy
- Cardiac arrhythmias
- Beri-beri (damages the heart)
- Hypertension and stroke
- Hyperlipidaemia
- Megaloblastic anaemia (due to folate

deficiency or direct toxic effect on bone marrow)

- Sideroblastic anaemia (associated with reduced serum-folate and erythrocyte folate concentrations)
- Iron-deficiency anaemia (associated with poor diet or haemorrhage from oesophageal varices or gastritis)
- Thrombocytopenia
- Leucopenia

Respiratory system

- Chest infections

Central nervous system

- Epilepsy
- Wernicke-Korsakoff syndrome
- Peripheral neuropathy

- Memory loss

Endocrine system

- Gynaecomastia, impotence, loss of libido, low sperm count and testicular atrophy in men
- Menstrual disorders and progressive masculinisation in women
- Hypoglycaemia
- Type 2 diabetes (can be related to pancreatic disease)
- Pseudo-Cushing's syndrome

Musculo-skeletal system

- Acute or chronic myopathy
- Hyperuricaemia (gout)
- Osteoporosis
- Osteomalacia

women achieve similar blood-alcohol levels, indicating that other mechanisms may contribute to the differences in bioavailability after oral intake. For example, some alcohol is metabolised in the gastric mucosa and gastric metabolism occurs more readily in men than in women. Women may attain particularly high blood-alcohol levels (and therefore be more vulnerable to the effects of alcohol) at the time of ovulation or just before menstruation.

WHAT ARE THE EFFECTS OF ALCOHOL CONSUMPTION?

Response to alcohol varies between individuals. This occurs for several reasons, such as the presence of food in the stomach, interaction with medicines a person is taking and race, as well as gender. With regular consumption tolerance develops and frequent, heavy drinkers may be able to drink far more than occasional drinkers, with little sign of intoxication.

The acute effects of alcohol are caused by its complex effects on the central nervous system. Alcohol seems to reduce the effects of excitatory neurotransmitters, such as glutamate, and enhance the actions of inhibitory neurotransmitters, such as gamma-amino butyric acid (GABA). The pleasant effects of alcohol may be due to the release of neurotransmitters such as dopamine.

The features of alcohol intoxication are related to blood-alcohol and brain-alcohol concentrations. At low levels (ie, blood-alcohol concentration below 50mg/100ml), alcohol leads to a sense of well-being, increased confidence and relaxation. At blood levels of 50 to 100mg/100ml, speech becomes slurred, judgement is impaired and

co-ordination is poor. At 100 to 500mg/100ml, the person may lose self-control and experience blurred vision, convulsions and coma. Blood-alcohol concentrations above 500mg/100ml can result in respiratory depression, loss of tendon reflexes, hypothermia, coma and sometimes death. Panel 2 lists the conditions associated with chronic, excessive alcohol consumption.

People with alcohol problems often have an unbalanced diet with an inadequate and irregular food intake. Although it is a significant source of energy (one unit provides 56.0 kcal), alcohol provides few nutrients. So, if alcohol replaces nutritious foods in the diet, as it often does with chronic, excessive alcohol intake, nutritional deficiencies can occur. Regular drinking is expensive and financial constraints may mean that priority is given to alcohol rather than food. Heavy drinking may result in loss of appetite. This can be because of gastritis or a feeling of bloating, which is common after beer drinking, or simply because energy demands are being met by alcohol. In some people, the extra calories alcohol provides results in obesity.

Excessive alcohol consumption can also cause malabsorption of nutrients, including vitamin B₁, folic acid, vitamin B₁₂ and pyridoxine, resulting in conditions such as anaemia, beri-beri and Wernicke-Korsakoff's syndrome.

Mary tells you that she plans to talk to Rob about his problem and asks if she can refer him to you for advice.

WHAT OPTIONS ARE OPEN TO ROB IF HE WANTS HELP?

In the first instance, it is appropriate for an intervention to be performed by a pharmacist or general practitioner. The WHO guidelines¹ provide more detailed information on advice and support that can be given to patients and their families. If Rob comes into the pharmacy, you might be able to spend a few minutes with him, providing information on the health risks of high alcohol consumption. This would be an opportunity to find out if he is willing to stop or reduce his drinking. If so, you could consider negotiating goals for decreased drinking or setting a definite day to quit. Strategies to avoid high-risk situations (eg, social situations or stressful events) could be discussed and family members or friends who will support him could be identified.

But in many cases, more intense counselling is usually required. Where there is no evidence of physical harm or the person is not ready to stop drinking, a "controlled drinking programme" (decreased alcohol use) is recommended. For those with physical illness or dependency, or both, an abstinence programme is recommended. The management of alcohol withdrawal is known as detoxification. This can be carried out in a variety of settings such as hospital or National Health Service alcohol treatment units and residential services. Detoxification at home may be offered by community alcohol teams, alcohol advice and counselling services or through general practice, but it should only be undertaken by practitioners with appropriate training. Self-help organisations (see

PANEL 3: HELPFUL ORGANISATIONS

- Alcohol Concern, Waterbridge House, 32-36 Loman Street, London SE1 0EE Tel: 020 7928 7377 Fax: 020 7928 4644 www.alcoholconcern.org.uk
- Alcoholics Anonymous (a network of self-help groups with over 3,000 groups in the UK) www.alcoholics-anonymous.org.uk
- Department of Health (alcohol misuse information) www.doh.gov.uk/alcohol
- The Portman Group (an organisation promoting sensible drinking) www.portman-group.org.uk
- Turning Point (a social care organisation working with individuals and their communities across England and Wales in the areas of drug and alcohol misuse, mental health and learning disabilities) www.turning-point.co.uk

Panel 3) can also be helpful, offering their own recovery programmes (eg, Alcoholics Anonymous's Twelve-Steps) as well as support for families and friends.

WHAT WITHDRAWAL SYMPTOMS CAN BE EXPECTED?

Symptoms of alcohol withdrawal in people who have an alcohol dependency start within a few hours of the blood-alcohol concentration reaching zero and tend to peak between 24 and 36 hours later. Symptoms include insomnia, irritability, nausea and retching, sweating, tremor and weakness. Hallucinations and convulsions may occur occasionally. In rare cases the patient may develop signs of status epilepticus, although other causes (eg, hypoglycaemia) should be investigated. Chronic heart failure and arrhythmias may be associated with alcohol withdrawal, especially if alcohol-related cardiomyopathy is present.

Delirium tremens is a rare but life-threatening manifestation of alcohol withdrawal. It begins within four days of stopping or reducing alcohol and may continue for up to a week. It is characterised by severe agitation, confusion, disorientation, tremor, insomnia, nightmares, hallucinations, profuse sweating, nausea and vomiting, hypertension, arrhythmias and dehydration. Feelings of fear arising from hallucinations may lead to aggressive or suicidal behaviour.

WHAT DRUGS ARE USED TO MANAGE DETOXIFICATION?

Benzodiazepines (eg, chlordiazepoxide and diazepam) are commonly used to control alcohol withdrawal symptoms. The British National Formulary recommends chlordiazepoxide 10–50mg, four times a day, gradually reduced over seven to 14 days. The WHO guidelines¹ also recommend that dispensing should be daily or that the support of family members is enlisted to prevent the risk of misuse or overdose. The BNF states that clomethiazole should be used for the management of withdrawal in an inpatient setting only. It is associated with a risk of dependence and should not be prescribed if the individual is likely to continue drinking. The WHO guidelines, however, state that clomethiazole is not recommended.

Disulfiram is used occasionally as an adjunct to the treatment of alcohol dependence. It discourages alcohol consumption by producing an unpleasant reaction (eg, facial flushing, tachycardia, nausea and vomiting) with alcohol. However, it has become unpopular, probably because compliance tends to be poor and it needs to be taken for months. Acamprosate may be used to maintain abstinence in alcohol-dependent patients by reducing the craving for alcohol. It should be started as soon as possible after abstinence has been achieved and should be maintained if the patient relapses. Continued alcohol abuse, however, negates the value of this drug.

Patients should be given thiamine (vitamin B₁) during the withdrawal period, to treat deficiency. If symptoms of Wernicke's encephalopathy are present, large doses of intravenous thiamine are required, but facilities for treating anaphylaxis must be available when this is administered. When the patient is discharged, oral multivitamins or B vitamins can be prescribed.

WHAT ARE THE LIKELY OUTCOMES OF AN INTERVENTION?

The success of an intervention depends on several factors, but particularly how well the client engages with treatment. If the client leaves a detoxification programme in a planned way, the outcome is more likely to be positive. Brief interventions (ranging from five to 10 minutes of information to two or three sessions of motivational counselling) have been associated with a 24 per cent reduction in alcohol consumption.² A methodological analysis of 361 clinical trials of treatments concluded that brief interventions had a 68 per cent positive outcome, defined as some reduction in drinking.³

More intensive counselling and therapy, of which there are many different types, has been associated with significant improvement in quality of life. A survey of 23 alcohol counselling services in England by Alcohol Concern in 2001 found average improvements in physical and psychological health of 74 and 76 per cent, respectively. Social skills training (eg, how to deal with friends who still drink) and cognitive behavioural therapy have also been associated with positive outcomes.³ For patients who require detoxification, community programmes seem to produce better outcomes in those

action: practice points

Reading is only one way to undertake CPD and the Society will expect to see various approaches in a pharmacist's CPD portfolio.

1. Read the WHO guidelines for alcohol misuse.
2. Speak to your local drug and alcohol clinic about what you can do to help people with alcohol problems.
3. Studies show that Wernicke-Korsakoff's syndrome occurs in 12.5 per cent of people dependent on alcohol. Find out more about this condition (eg, visit www.alcoholconcern.org.uk/servlets/doc/79).

evaluate

For your work to be presented as CPD, you need to evaluate your reading and any other activities. Answer the following three questions: What have you learnt? How has it added value to your practice? For example, have you applied this learning or had any feedback? What will you do now and how will this be achieved?

with less severe problems than in those who are socially unstable (eg, people who self-harm) or who have more severe alcohol problems. The latter seem to do better in intensive or inpatient programmes. A study examining home detoxification found that 37 per cent maintained abstinence throughout the follow-up period of six months.⁴ Outcomes from day care and residential services have also been estimated. The Alcohol Concern survey³ concluded that three to 12 months after leaving day care, abstinence was maintained by 56 per cent of clients, and 60 to 92 per cent of clients traced maintained positive outcomes six months to four years after leaving treatment.

WHAT ROLE CAN PHARMACISTS PLAY IN ALCOHOLISM?

Pharmacists can play an important part in the management of alcohol problems.⁵ As well as asking patients about their drinking habits and encouraging them to reduce their consumption, they can:

- Become involved in campaigns promoting sensible drinking
- Act as a signpost to services for specialist help
- Contribute to the development of local guidelines for treating alcohol withdrawal
- Counsel on the appropriate use of medicines in known alcohol misusers
- Be alert to the signs of alcohol-related disease or withdrawal
- Encourage GPs to prescribe thiamine and multivitamins for people with alcohol problems, if they are likely to be compliant
- Discourage GPs from prescribing maintenance benzodiazepines once an alcohol detoxification programme is complete

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