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Pharmacological management of alcohol withdrawal in a general hospital

AIMS AND METHOD

To assess the quality of prescriptions for alcohol detoxification and vitamin prophylaxis for in-patients who were alcohol-dependent in a general hospital, before and after the introduction of prescribing guidelines. We assessed 27 prescription charts before and 22 after intervention against standards based on national guidelines.

RESULTS

There was an increase of 43% (95% CI 20–65%) in the proportion of alcohol detoxification prescriptions that met the guidelines. For vitamin prophylaxis there was an increase of 64% (95% CI 42–85%).

CLINICAL IMPLICATIONS

The pharmacological management of alcohol withdrawal in the general hospital can be significantly improved by promoting and making readily available a prescribing guideline. In turn, this may reduce alcohol-related brain damage.

Alcohol-related illness is of increasing significance to the health service, costing up to £1.7 billion per year (Cabinet Office, 2003). In general hospitals, 15–20% of adult in-patients are alcohol-dependent (Mayo-Smith *et al*, 2004). Alcohol withdrawal, if not recognised and adequately treated, can progress to delirium tremens, which causes death in up to 5% of cases (Lishman, 1998).

Poorly managed alcohol detoxification can cause distress to individuals and their carers, and increase referral rates to liaison psychiatry services. Individuals who have undergone inadequate detoxification are less likely to engage in subsequent alcohol rehabilitation. Thiamine deficiency secondary to alcohol dependency can lead to permanent neurological damage such as Wernicke–Korsakoff syndrome. Individuals with this condition frequently require permanent institutional care – costly and potentially avoidable through the appropriate vitamin prophylaxis (Royal College of Physicians, 2001). Appropriate alcohol detoxification and vitamin prophylaxis are crucial in preventing these problems.

Guidelines for the pharmacological management of alcohol withdrawal have been published by the Royal College of Physicians (2001) and the British Association of Psychopharmacologists (Lingford-Hughes *et al*, 2004). Generally, benzodiazepines in combination with vitamin prophylaxis are suitable for alcohol detoxification regimes.

The aim of this study was to audit the quality of prescriptions of alcohol detoxification and vitamin prophylaxis for in-patients with alcohol dependency in a general hospital, before and after the compilation and dissemination of prescribing guidelines.

Method

Setting

The audit was undertaken on the medical and surgical wards of a district general hospital in south London. The hospital has approximately 600 beds, 195 junior doctors and a catchment area of about 300 000 people. This suburban area has districts of relative affluence interspersed with more deprived ones; a mean index of social deprivation is 15.9 (Office of the Deputy Prime Minister, 2004).

Standards

We established standards for alcohol detoxification and vitamin prophylaxis based on guidelines published by the Royal College of Physicians (2001) and the British Association of Psychopharmacologists (Lingford-Hughes *et al*, 2004).

For alcohol detoxification, prescriptions met the standard if either chlordiazepoxide or diazepam was prescribed as a reducing regimen for an adequate duration. For vitamin prophylaxis, prescriptions met the standard if the dose, route and duration met with the guidelines.

Intervention

We compiled a written prescribing protocol and distributed it in the hospital. The protocol was based on national guidelines adapted as suggested by the hospital pharmacists. The guidelines for alcohol detoxification are

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Table 1. Guidelines for alcohol detoxification[1]

Starting dose of chlordiazepoxide (daily alcohol consumption)	15–25 mg (15–25 units)		30–40 mg[2] (30–40 units)		50 mg QDS[2] (50–60 units)
Day 1 (starting dose)	15 QDS	25 QDS	30 QDS	40 QDS[2]	50 QDS[2]
Day 2	10 QDS	20 QDS	25 QDS	35 QDS	45 QDS
Day 3	10 TDS	15 QDS	20 QDS	30 QDS	40 QDS
Day 4	5 TDS	10 QDS	15 QDS	25 QDS	35 QDS
Day 5	5 BD	10 TDS	10 QDS	20 QDS	30 QDS
Day 6	5 nocte	5 TDS	10 TDS	15 QDS	25 QDS
Day 7		5 BD	5 TDS	10 QDS	20 QDS
Day 8		5 nocte	5 BD	10 TDS	15 QDS
Day 9			5 nocte	5 TDS	10 QDS
Day 10				5 BD	10 TDS
Day 11				5 nocte	5 TDS
Day 12					5 BD
Day 13					5 nocte

BD, twice daily; nocte, at time-time; QDS, four times daily; TDS, three times daily.

1. Alcohol-dependent individuals with withdrawal symptoms or at high risk of developing withdrawal (based upon their history) should receive a proper reducing dose detoxification regime. Dosage should be individually titrated against severity of withdrawal symptoms and signs.

2. Doses of chlordiazepoxide in excess of 30 mg QDS should only be prescribed if severe withdrawal symptoms are expected; the individual's response to treatment should be regularly and closely monitored. Doses in excess of 40 mg QDS should only be prescribed where there is clear evidence of very severe alcohol dependence. Such doses are rarely necessary in women and never in the elderly, or in individuals with liver impairment. Notes: liver impairment – the metabolism of benzodiazepines may be reduced and lead to over-sedation; severe withdrawal or delirium tremens – additional doses of oral chlordiazepoxide or intramuscular diazepam 10 mg may initially be necessary; over-sedation – if the person is very sleepy or over-sedated, the dose may need to be reduced; severe behavioural disturbance – for individuals who do not respond to benzodiazepine, add haloperidol 5–10 mg oral or intramuscular.

Table 2. Guidelines for vitamin prophylaxis

Patient	Prophylaxis required
Incipient Wernicke's encephalopathy (confusion, ataxia and ophathlmoplegia)	Two pairs high-potency thiamine injection[1] three times daily for 3 days, followed by one pair once daily for 3–5 days depending on response
At-risk (significant weight loss, poor diet, signs of malnutrition)	One pair high-potency thiamine injection[1] once daily for 3–5 days
Lower risk	Thiamine 200 mg orally, four times daily, plus vitamin B compound strong two tablets three times daily during detox

1. In addition to thiamine, also contains vitamin C and other B vitamins. It can be given intravenously or intramuscularly. Anaphylaxis is a rare but recognised complication, hence equipment and medication for treating it must be available. When giving the medication intravenously, dilute high-potency thiamine in 50–100 ml normal saline or 5% dextrose and give over 10–30 min.

shown in Table 1 and those for vitamin prophylaxis in Table 2.

The protocol was published in the hospital's handbook of medical emergencies issued to junior doctors. It was also printed on laminated A4 sheets and placed at visible sites on all medical and surgical wards. The protocol was included in teaching sessions on alcohol provided for junior doctors by the liaison psychiatry team.

Audit cycles

During the audit, ward staff and hospital pharmacists helped to identify in-patients who were alcohol-dependent. The second audit cycle was conducted 9 months after the intervention. We analysed 27 prescription charts in the first audit cycle and 22 charts in the second cycle. Data were analysed for significant changes in prescribing patterns.

Results

In the first audit cycle, 13 out of 27 prescriptions (48%) met the standard for detoxification. In the second cycle, 20 out of 22 met the standard (91%), an improvement of 43% (95% CI 20–65%).

The standard for vitamin prophylaxis was met in 5 out of 27 prescriptions (19%) in the first audit cycle and in 18 out of 22 prescriptions (82%) in the second cycle, an improvement of 64% (95% CI 42–85%).

Discussion

Our audit showed that the compilation and distribution of prescribing guidelines led to improvements in the pharmacological management of alcohol withdrawal in in-patients in general hospital.

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An audit by McIntosh *et al* (2005) also showed improvements in patient management after the introduction of prescribing guidelines but they looked specifically at the prescription of parenteral thiamine in a psychiatric setting. They found that including information on the identification and treatment of Wernicke–Korsakoff syndrome in hospital prescribing guidelines improved prescribing. Our audit extends the intervention by including guidelines on alcohol detoxification and shows its use in a general hospital.

The Royal College of Physicians (2001) identified key areas that act as barriers to the effective treatment of individuals who are alcohol-dependent. These are a lack of education and training for hospital staff, organisational barriers and negative attitude in staff. Our intervention and audit were aimed at addressing the first two of these barriers.

Prescribing for in-patients with alcohol dependency is often the task of junior doctors. However, during the audit we confirmed a relative lack of knowledge about the management of alcohol dependency among this group, which may reflect a gap in undergraduate medical education. Of note, the British National Formulary (2007), an important source of information on prescribing, does not include detailed prescribing regimes for alcohol detoxification and vitamin prophylaxis.

Limitations

The audit was specifically designed for a single general hospital, which may limit extrapolation of the findings to other settings. We did not seek to identify in-patients who were alcohol-dependent that were not diagnosed as such on admission. The adequacy of prescriptions may therefore be overestimated. Also, we did not identify which components of the interventions were the most powerful in triggering change, namely, promoting the guideline at teaching sessions, including it in the hospital handbook of medical emergencies or displaying it on the wards (e.g. on notes trolleys and nursing stations). Further audit cycles would be required to see whether the benefits of the introduction of the prescribing protocol have been maintained.

Prescribing guidelines can help to improve the pharmacological management of alcohol-dependency in general hospital in-patients. This may lead to more individuals subsequently engaging with interventions for alcohol dependency and reduce alcohol-related brain damage.

Declaration of interest

None.

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