Drug and alcohol abuse: what physicians need to know

Conference rapporteur: Sally Bradberry

This conference, which was held at the Royal College of Physicians on 9 December 1999, was organised by Dr Allister Vale, Director, National Poisons Information Service (Birmingham Centre), City Hospital, Birmingham, and Professor John Strang, Director, National Addiction Centre, Maudsley Hospital, London.

Among over 100 registrants were medical and nursing staff from throughout the UK, many working in the acute medical, psychiatric or rehabilitation services, in addition to clinical and scientific staff from the National Poisons Information Service (NPIIS), the pharmaceutical industry, the police service and the DVLA. The diversity of specialists involved in the management of drug and/or alcohol related problems was reflected also by the speakers, who were specialists in emergency medicine, psychiatry, clinical pharmacology and clinical toxicology. The lectures provided a comprehensive and challenging insight into the problems presented by substance abuse and prompted enlightening discussion.

Problems relating to drug and alcohol abuse have been a focal interest of the College throughout its history1. Moreover, the College presently is involved in the publication of two highly relevant reports: Drugs – dilemmas and choices and Nicotine addiction in Britain.

Defining the problem: who takes drugs, what substances are taken?

Substance users may present with complications of acute intoxication, physical and/or psychological problems of dependence, or the cumulative social and health problems secondary to regular substance abuse. Since most patients first encounter illicit drugs or alcohol in their early teens, education and preventative intervention must target the young. In addition, the inextricable link between social deprivation and drug and alcohol misuse must be fully appreciated if both problems are to be resolved.

The alcohol-intoxicated patient in the emergency department: a nuisance or a challenge?

While the role of alcohol is only too obvious in many acutely intoxicated, aggressive individuals, medical staff

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J R Coll Physicians Lond 2000;34:577–80

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need to be constantly vigilant for the covert alcoholic for whom presentation with, for example, a fall, an act of deliberate self-harm or domestic violence is the only clue to the underlying diagnosis. A rapid screening test (the Paddington Alcohol Test, PAT) has been introduced at St Mary's Hospital, London, to improve detection of and intervention for these patients. After dealing with the patient's agenda, staff complete a 'PAT' questionnaire for all patients whose presentation is on a 'top ten' list of circumstances that may be associated with alcohol misuse. The questionnaire is positive if the patient admits to drinking more than eight units of alcohol on one or more days per week, and/or they affirm that their hospital attendance is alcohol-related. All PAT positive individuals are offered an appointment with an alcohol health worker in the emergency department. A strong case for funding alcohol health workers in accident and emergency departments (there are currently only three in the UK) is supported by studies showing that such intervention can modify patient behaviour positively, especially if instituted early.

Managing the confused and intoxicated drug abuser: clinical, ethical and legal aspects

The patient's mental state may reflect a direct effect of alcohol or drugs, or be due to one or more secondary complications of intoxication, notably hypoxia, hypoglycaemia, hyperthermia, or an intracerebral event. Where assistance in the interpretation of the patient's history is required, the 'dictionary' of slang drug names (available from TOXBASE - the NPIS database) and the computerised drug identification facility TICTAC (available on CD Rom or via the NPIS) are useful tools. Even when no history is available, knowledge of the features caused by drugs of abuse will enable the physician to best guess the agent involved and anticipate the likely clinical course. It is imperative that even the most difficult patient is examined thoroughly, not only to ensure secondary complications of substance misuse are identified, but also to avoid missing an alternative or coincidental diagnosis.

Intoxicated patients present a difficult challenge with regard to the use of restraint and/or sedation. In many circumstances calm reassurance and an attempt to address the patient's immediate needs can defuse a volatile situation. Restraint is required rarely and when it is necessary, patient and staff safety are paramount. When sedation is indicated, a benzodiazepine alone is preferred: alternatively, a butyrophenone may be used. The risk of respiratory suppression following the use of sedative drugs necessitates that patients are adequately monitored.

The aggressive confused patient also presents an ethical and legal challenge with respect to the balance between a doctor's duty of care and a patient's autonomy. The pivotal decision is whether the patient is able competently to refuse or accept medical advice and treatment. If a patient's capacity to consent is diminished, treatment should be instituted as necessary to preserve well-being.

Opioid and benzodiazepine intoxications: when should an antidote be administered?

The NPIS receives a large number of enquiries concerning the management of opiate intoxication. It is an increasing clinical problem, and there is widespread uncertainty regarding optimum treatment. It is important to appreciate that the agent involved, the dose and route of administration, and whether the individual is a naive drug user or an addict will affect the rate of onset, severity and duration of opiate toxicity. For example, the rapidity of onset and duration of respiratory suppression is much shorter following intravenous heroin (diamorphine) administration than after methadone ingestion. Also, premature termination of naloxone therapy is a significant, potentially fatal error, if the attending physician does not remember (or know) that the elimination half-life of methadone is of the order of 50 hours. It is also always prudent to suspect discrepancy between the details of exposure as presented by the patient and reality, if management errors are to be avoided.

An adequate resuscitative dose of naloxone in opiate intoxication may be several milligrams; the drug should be given intravenously and patients must be admitted to an area where they can be closely monitored. Naloxone infusions are useful but the infusion rate must be tailored to the individual circumstances of intoxication, and be proportional to the initial resuscitative bolus dose. Expert advice is always available via the NPIS.

Flumazenil is not licensed for the treatment of benzodiazepine intoxication and its use should be reserved for those cases where judicious antidote administration will negate the need for mechanical ventilation. Potential contraindications to flumazenil use are mixed benzodiazepine and tricyclic antidepressant poisoning (where flumazenil may unmask seizure activity), chronic benzodiazepine dependency and a recently diagnosed seizure disorder.

Cocaine: invasion of the body packers

Cocaine kills 6,500 people a year in the United States, and there are in addition serious sequelae including myocardial infarction and stroke. Cocaine abuse continues to be widespread, with young professionals typically snorting, injecting or 'shebanging' (squirting into the nostril) heat-labile cocaine hydrochloride, while heat-stable free base 'crack' (made by heating the hydrochloride with sodium bicarbonate) is smoked, usually by poor urban men.

There is no specific antidote to cocaine, and treatment is supportive. Of particular importance are adequate sedation, and prompt and efficient cooling if hyperthermia is present. Beta adrenoceptor antagonists are potentially dangerous, because they may worsen hypertension by leaving alpha-adrenergic effects unopposed.

A unique and increasing problem is presented by the 'body packer' who attends the emergency department through fear, with abdominal pain or symptoms of intoxication, or
accompanied by Customs and Excise officials, having attempted to conceal packets of cocaine, wrapped in rubber or plastic, in the gut or genital tract. Each packet commonly contains more than ten times the fatal oral dose of cocaine. Swallowed packets present the greatest challenge, though most can be identified by plain or contrast x-rays. Positive urine tests for cocaine may signify a leaking packet. These patients do not usually require surgery, though intestinal obstruction or increasing signs of cocaine poisoning from leaking packets usually warrant surgical intervention.

**Nitrites: high and slate-grey!**

Volatile alkyl nitrites (for example isobutyl and amyl nitrite) are widely available in sex shops and sold as aphrodisiac, dance-enhancing room odourisers. Though carrying the warning that they should not be inhaled directly from the bottle, this is usually the precise intention of the purchaser. These agents may also be ingested, mistakenly or intentionally. Most volatile nitrite exposures result only in mild vasodilatory phenomena (such as dizziness, headache and tachycardia) but physicians need to be aware that prolonged inhalation or ingestion may result in methaemoglobin formation. Methaemoglobin concentrations less than 20% of total haemoglobin are usually asymptomatic but cause a marked apparent ‘cyanosis’ which is disproportionately greater than the observed degree of respiratory distress and is unresponsive to oxygen therapy. At higher methaemoglobin concentrations symptoms of tissue hypoxia ensue and greater than 70–80% methaemoglobinemia is potentially fatal. Pulse oximetry is unreliable in the presence of methaemoglobinemia and arterial blood gas analysis reveals normal partial pressures of oxygen and carbon dioxide and a normal calculated haemoglobin oxygen saturation. While in healthy adults methaemoglobin concentrations of less than 30% total haemoglobin are unlikely to warrant specific treatment, more severe degrees of methaemoglobinemia should be treated promptly with intravenous methylene blue, 2 mg/kg body weight.

**Amphetamine and MDMA abuse: what investigations should be performed?**

A clear understanding of the physiological mechanisms involved in Ecstasy (3,4-methylenedioxyxymetamphetamine, MDMA) intoxication is required in order to manage patients optimally. In the hot, energetic, hyped environment of the ‘rave’ scene with continuous dancing and often inadequate fluid replacement, the serotonergic properties of MDMA promote a disregard for the normal body signals of tiredness, with muscle hyperactivity and dehydration leading to hyperthermia, collapse and ensuing complications, including seizures and rhabdomyolysis. Increased awareness of the potential hazards of inadequate fluid replacement led, after about 1993, to a new clinical presentation among Ecstasy users. In these cases, over-zealous fluid replacement, combined with Ecstasy-induced increased antidiuretic hormone activity, promoted water retention, hyponatraemia and cerebral oedema.

Animal studies suggest MDMA is a potential neurotoxin with evidence of ablation of serotonergic neurons and thus serotonin depletion following repeated exposure. This raises questions regarding clinical sequelae in regular users, for example the development of depressive illness later in life. Ultimately, therefore, the best advice to our patients is not to take Ecstasy at all, but regular users should be aware of the importance of adequate but not over-zealous fluid replacement, and that their drug habit may have long-term adverse health effects.

**Complications of drug abuse: a clinical overview**

The myriad of complications that may arise from drug abuse can be classified according to the route of drug exposure, whether by ingestion, inhalation, injection or through dermal/mucous membrane contact. For example, intravenous drug abuse poses the risk of local complications such as phlebitis, venous thrombosis, abscess formation, ulceration and gangrene, with possible systemic complications including bacteraemia, bacterial endocarditis, hepatitis, HIV infection, vasculitis and non-cardiogenic pulmonary oedema. An awareness of these complications not only enables physicians to ensure their history, examination and investigations are comprehensive, but may also provide clues to the presence of drug abuse in patients who may not volunteer this information. In some preparations adjuvants may also be responsible for complications. For example, some drugs of abuse contain pharmacological agents such as quinine or phenyltoin. In other cases ‘inerts’ may cause adverse effects, for example talcum powder-induced lymphatic obstruction.

**Drugs of abuse in pregnancy: what are the dangers?**

Drug abuse during pregnancy is an increasing problem and an area which is inherently difficult to research accurately since drug abuse is an emotive subject; patients do not want to confess to practices which may be illegal. In addition, the doses and purity of the substances involved are uncertain, it is extremely difficult to select appropriate control groups and avoid reporting bias, and there are numerous confounding factors, such as smoking history, nutritional status, medical history (particularly infectious diseases), and drug history.

The risk of fetal malformations is highest during the period of organogenesis, between days 17 and 57 post conception (although the fetal genitalia continue to develop until approximately 84 days post conception). Alcohol excess during pregnancy is associated with increased spontaneous abortion, cleft palate, congenital heart disease, low birth weight and the fetal alcohol syndrome. However,
there is no evidence that 2–4 units of alcohol per week during pregnancy has adverse fetal effects. Cocaine use also carries a significant risk of fetal malformation, particularly urological malformations, and possibly cranial abnormalities. There is no clear evidence that cannabis, benzodiazepine or heroin abuse are associated with fetal malformation and the evidence is inconclusive for LSD, Ecstasy and amphetamines. However, even where there is no confirmed evidence of fetal malformation risk, pregnancies in the drug-abusing population have a high incidence of intrauterine growth retardation, low birth weight infants and sudden infant death syndrome. Neonatal withdrawal syndromes may occur in infants born to mothers who abuse cannabis, benzodiazepines, amphetamines or opiates.

Alcohol withdrawal: what is the optimum therapy?

Acute withdrawal not infrequently presents as a medical emergency during hospital admission for another cause and thus all physicians should be able to treat these patients confidently and competently. Elective admission to ‘come off’ alcohol will only be successful if the patient is truly committed to change; nothing is achieved and valuable resources squandered if patients regard an inpatient withdrawal episode merely as a convenient respite in order to commence their next drinking bout in good health. In particular, patients requesting (or even demanding) their preferred withdrawal medication on arrival should be resisted, and probably discharged.

It is not appropriate to suggest that acute alcohol withdrawal is a psychiatric problem, and not unreasonably most psychiatrists are unwilling to admit these patients acutely. Alcohol withdrawing patients require experienced medical and nursing care, ideally in an area dedicated to this role. Constant reassurance, reassessment and good lighting are essential. However, drug treatment is rarely required. It is irrational to prescribe drugs for withdrawal if only mild features are present, although this practice is common. Most withdrawing patients can be managed without medication, giving the abusers an opportunity to exercise non-pharmacological control over their lives. Where medication is required the drug regime should be patient-specific, symptom-triggered and flexible; fixed schedules are inappropriate6. Withdrawal feature scorecharts are useful to identify deterioration and ensure that treatment is commenced promptly6. If required, benzodiazepines are the drug class of choice, and longer-acting preparations are probably more effective than short-acting benzodiazepines in preventing seizures and producing a ‘smoother’ withdrawal course. Chlormethiazole should not be used routinely, if ever, in the management of alcohol withdrawal; although it is better than placebo in reducing features of withdrawal, there are insufficient data on its role in preventing seizures and delirium tremens. In addition, chlormethiazole is potentially dangerous when administered intravenously. Other drugs which may have a role, though not as monotherapy, include beta blockers, clonidine, carbamazepine and phenothiazines. All withdrawing patients should receive oral thiamine 100 mg b.d., though the parenteral administration of B vitamins is rarely indicated.

Treating the abuser: what does the addictions specialist have to offer?

Primary health care offers several important advantages in the management of addiction – easy patient access and a view of the addiction problem in the context of the individual’s daily life, as well as optimal continuity of care. However, these benefits will be realised only if a large proportion of primary health care colleagues participates in providing care to this patient group. At present many general practitioners have reservations about the nature of the work, the adequacy of their previous training and the extent of specialist support that would be provided. New shared care arrangements aim to provide this vital support alongside further training opportunities so as to foster the development of more extensive locally-available care to this rapidly growing patient population.

Conclusion

The conference provided an enlightening update encompassing the clinical, pharmacological, ethical and medicolegal challenges presented by alcohol and drug abuse.

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