DRUGS AND THE SOLDIER

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NOT all that is written about drugs is based on solid fact or even on sound opinion. The following is a review of some of the generally accepted opinions on drugs of abuse today, seen from the viewpoint of an Army psychiatrist and generously mixed with personal opinion and prejudice.

Undoubtedly, an epidemic of drug misuse is going on and there is not the slightest reason to suppose that the Army will escape it entirely, but we do not know how serious it is because illicit drug taking is essentially a secret activity. It is difficult to know, even, how dangerous the known cases really are and what proportion of the patients are controlled users, even of opiates, never likely to show the dreaded physical and mental deterioration leading to an early death. We are facing a problem of unknown seriousness, due to ill-understood factors and demanding a solution by means of which we are largely ignorant.

A drug is any chemical substance which, taken into the body, is capable of effecting some change. In this context, the definition can be narrowed; the change is in consciousness and leads to misuse of the drug. Almost any change will do and some drugs which are liable to produce decidedly unpleasant changes such as, for example, Lysergic Acid Diethylamide (LSD), can still lead to dependency. This has been described by the W.H.O. Expert Committee on Drug Dependence 1968 as "a state, psychic and sometimes also physical, resulting from the interaction between a living organism and a drug, characterised by behavioural and other responses that always include a compulsion to take the drug on a continuous or periodic basis in order to experience its psychic effects, and sometimes to avoid the discomfort of its absence. Tolerance may or may not be present."

Not all dangerous drugs are regarded as such. Some are socially accepted with international prejudice in their favour. For example tobacco. Over 4 per cent of hospital beds in the United Kingdom (U.K.) are occupied by patients suffering from cigarette-induced diseases (Ball 1970). The mounting death from carcinoma of the bronchus alone are approaching 30,000 per annum in the U.K. and are generally accepted now as being effectively due to cigarette smoking. Such a death rate from road accidents would produce enormous indignation and a thousandth of it from heroin would produce a furore. Yet advertising of tobacco has not even been banned by our Government or any other. Nobody can ignore these facts and yet argue convincingly with the adolescent pot-smoker who drives his horse and cart through the gap in our logic by refusing to accept condemnation of marijuana from a person with a cigarette in one hand and a drink in the other.

The aetiology of abuse is complex. Drugs taken repeatedly with pleasurable effects have a tendency to continued self-administration, each repetition providing reinforcement of the trend. Some drugs are particularly potent in this respect, especially if administered by certain routes, for instance, the intravenous administration of heroin and amphetamines considerably facilitates the development of habitual use. Availability is a primary factor and one which has been of importance in the European epidemic of the past

10 years. The "pushers" have their supplies, and the economies of whole countries depend on drug crops, so they go where the market is and expand it. A new cultural organisation with more money in the hands of adolescents and the effects of mass media depending on sensation for their sales are also significant. In Europe today there is an increased likelihood that the adolescent will be exposed to the drug milieu. If the individual's pre-existing psychological state is such that the pleasurable effect of drugs is enhanced, the risks of dependency are greater. Some individuals are "susceptible" to the development of drug dependency and it has been estimated that about 5 to 10 per cent of the population is particularly at risk in this respect. The individual most likely to succumb and progress in the abuse of socially unacceptable drugs is identifiable, to some extent, by personality and environmental characteristics. In the past, lower social class was a factor but the victims now come increasingly from other levels. Noble and Barnes (1971), in a study of adolescent girls in a London remand home, showed progression to be correlated with previous delinquency, unstable work records, personality defects and difficulty in inter-personal relationships. The adolescent sub-culture may tend to put on pressure to conform by taking drugs. Cameron has described a number of factors associated with drug-taking behaviour. These include desires to foster a sense of ease of freedom, to escape from pain, anxiety, fear, boredom or unpleasant environment, or from inhibitions. There is also "Escape" to stimulation, to euphoria or to exotic experience, an attempt to achieve creativity, to make an identity or to become one of the group as well as to demonstrate emancipation. He makes the interesting point that both alcohol and cannabis are widely used as social lubricants but there is a reciprocal relationship in the frequency of their use, one displacing the other. On a different scale, there is the "domino" theory of international progression. If one country legalises the use of marijuana, there is pressure on others to liberalise the attitudes to that and other drugs.

Russell (1971) points out that teenagers who smoke cigarettes twice have a 70 per cent chance of smoking for the next forty years. He suggests that an interaction of social, psychological and genetic factors determine the onset of smoking in adolescence but that its maintenance is largely pharmacological. He describes five types of smoking: psychosocial, which tends to be early experience and not dependent; indulgent, for pure pleasure; tranquillisation, to relieve anxiety; stimulation, to allay fatigue, and addictive, to relieve or prevent withdrawal symptoms. He also says that 92 per cent of alcoholics and 99 per cent of heroin addicts are tobacco smokers. This is relevant to the fallacious argument that marijuana leads on to heroin addiction because more than half of heroin addicts have used this drug. If there were any force in it, the argument would apply even more to tobacco.

Dependence on drugs is of two types, psychological and physical. The former occurs where repeated use of the drug is necessary to enable the patient to maintain psychological normality, such as the prevention of irritability by continuation of the use of tobacco. The latter occurs where the drug is necessary for physical normality, as for the prevention of epileptic fits in heavy chronic barbiturate users. It tends to be associated with the abstinence syndrome with its intense craving on withdrawal and with the development of tolerance. This means that increasing doses are required to produce a given effect but it cannot be taken to mean that the dose can be increased indefinitely with impunity. Barbiturates, for example, are not much less lethal to the chronic user than to the novice, though their subjective effects are reduced.

In a military context, in addition to the injury to the individual there is the problem of all-important social damage. "In a disciplined society drug abuse can be even more damaging than elsewhere. Men using drugs not only reduce their own efficiency and self-reliance but lose a sense of responsibility towards their comrades-in-arms. They are not to be trusted in difficult situations and their presence can undermine the confidence of other members of their team. They can be a serious hazard, not only to themselves but to every impressionable young person with whom they come into contact. The Army, both on account of its function in combat and because of its responsibility towards those who enlist into its ranks, has a special commitment to ensure that drug abuse remains totally alien to its standards and to its practice".

The British Army medical officer probably meets few cases of drug misuse so far but he meets some and may not yet be sufficiently alert to the possibility that symptoms or signs may be drug-induced. There are few signs by which drug dependence can be recognised with precision but a high "index of suspicion" may lead to the discovery that drug misuse is occurring. The most important is a change of behaviour with deterioration in standard of cleanliness, punctuality, work or social contacts with perhaps unexplained weight loss. In particular the "Monday morning syndrome" of lateness, hangover and impaired efficiency, following a weekend of drug misuse, is important. Uncharacteristic violence, overactivity, restlessness or slowing and drowsiness may also indicate drug taking but none of these signs is pathognomonic.

A glassy stare may suggest Amphetamines, LSD or glue-sniffing, whereas sleepy, baggy eyes suggest barbiturates or marijuana, and drowsy eyes with contracted pupils are well known signs of acute opiate intoxication. On the other hand, dilated pupils with excess tears may also be associated with heroin addiction in withdrawal, as may a constantly running nose. Itching and scratching with puncture marks are also associated with heroin abuse and "heroin tattooing" is due to venous thrombosis because of dirty intravenous injections.

Verbal diarrhoea suggests amphetamines. Slurring and slowing suggest glue, barbiturates or heroin, and giggling and incoherence may be due to hallucinogens.

Classification of even the commonly misused drugs is difficult and not always helpful. For example, the division into "hard" and "soft" refers to the ease and rapidity with which a drug produces dependency and is not of great value socially nor in the patient who is abusing 10 or 20 different drugs concurrently. In the following summary of clinical features, habit-forming drugs are divided into depressants, stimulants and hallucinogens for descriptive purposes but the different members of a group may bear little or no relationship to each other beyond their type of action.

Depressants

This group includes the opiates, barbiturates, alcohol, many hydrocarbon solvents and anaesthetics. Chronic use of the depressants produces tolerance and physical dependence.

Opiates

The most commonly misused is heroin which is in circulation in tablet and also in powder form. These powders are often adulterated with various substances. The illicit user may take the drug intravenously or by subcutaneous injections which may lead to

injection marks or "heroin tattooing". The drug is also taken in the form of snuff.

(a) *Acute intoxication*

In certain individuals the drug produces euphoria and in some it releases fantasy. Drowsiness is induced in most people but some exhibit "driving", a display of unaccustomed energy. Flushing and itching of the skin follows intravenous injection, often with nausea and vomiting. The pupils are constricted, the respiratory rate is depressed and there is spasm of smooth muscle sphincters. Urinary retention is not uncommon. After injection, peak effect is reached in 20 minutes and the whole lasts 4-6 hours.

(b) *Opiate poisoning*

This is characterised by unresponsiveness, bradycardia, hypotension, hypothermia, slow or periodic respiration and pinpoint pupils. In severe cases artificial respiration will be required and one of the specific morphine antagonists, Nalorphine or Levallorphan, should be administered. Initially a dose of 3 to 5 mg of Nalorphine may be given intravenously. Repeated doses will be required and should be based on the clinical state of the patient. Restoration of vital functions is effected promptly but consciousness is not and Nalorphine should not be continued until the patient is conscious; only until he is breathing well with normal blood-pressure.

(c) *Chronic intoxication*

Many of the effects of heroin are lost with continued use but pupillary constriction and smooth muscle spasm are not. The euphoriant effect is usually lost, as is nausea and respiratory depression. Males become impotent and females cease to menstruate; ACTH production is depressed. Once a high degree of tolerance is established the prevailing mood is of anxiety and depression.

(d) *Abstinence*

The abstinence syndrome appears 12 to 16 hours after the last dose, reaches a peak on the second day and subsides over a week. It can be induced by the injection of a morphine antagonist. It also occurs with other opiates and related synthetics and is associated with a marked increase in somatic and autonomic activity characterised by yawning, rhinorrhoea, lachrymation, pupillary dilation, sweating, piloerection, colic, vomiting, diarrhoea, spontaneous ejaculation, insomnia and hypertension. All morphine-like drugs may be used interchangeably to suppress the syndrome but other depressants, such as barbiturates or phenothiazines, are ineffective except in anaesthetic doses.

(e) *Treatment*

The treatment of heroin addiction or chronic intoxication should be initiated by phased withdrawal or drug substitution and needs both physical and psychological methods. Heroin addiction is treated only in special centres and the addict must be registered.

Barbiturates

(a) Barbiturates may give rise to dependency as a result of experimentation and drug pushing, usually in conjunction with other types of drug. However, it is more commonly the result of medical treatment.

(b) Barbiturates have a disinhibiting effect like alcohol and may release aggressive behaviour or other activities normally suppressed. The dose is increased steadily as it loses its effect in controlling anxiety or insomnia. Withdrawal of doses of the order of 800 mg leads to weakness, tremor and anxiety, with a likelihood of hallucinosis and grand mal seizures. Less than 400 mg daily produces only minor withdrawal symptoms.

(c) The barbiturate abstinence syndrome is similar to that produced by alcohol and such drugs as chlordiazepoxide (Librium), meprobamate (Miltown) and diazepam (Valium). It is characterised by delirium, hallucinations, tremor, hyperthermia and grand mal. It can be fatal. Morphine-like drugs do not suppress this syndrome but it can be eliminated by exhibition of any of the drugs in the group other than phenothiazines.

(d) *Treatment*

When barbiturates addiction is fully developed, treatment must be initiated with carefully phased withdrawal. The long term management resembles that of alcoholism.

Other depressants

Various other members of this group are giving rise to problems of drug dependency. Meprobamate, chloral, glutethimide (Doriden), diazepam and chlordiazepoxide are examples.

Stimulants

Cocaine

(a) Chewing coca leaves dates back to prehistoric times in South America. In its purified form it is used as snuff or dissolved and used intravenously. It is a white, crystalline powder which glistens like snow. Mixed addictions to cocaine and opiates occur.

(b) Cocaine gives a feeling of energy, optimism and excitement and may give rise to overactivity. On examination, the subject may show tachycardia, hypertension, mydriasis and needle marks over veins.

(c) This drug readily induces a toxic psychosis with visual, auditory and tactile hallucinations. Delusions of a paranoid type may lead to aggressive behaviour. There are no withdrawal symptoms nor any abstinence syndrome.

(d) *Treatment*

In the emergency management of a case of cocaine psychosis, intramuscular chlorpromazine 100 mg, six hourly, can be used; plus, if necessary, other sedatives such as chloral or barbiturates in moderate doses. The long term management and rehabilitation is similar to that for all drug dependent individuals.

Amphetamines and related compounds

(a) Drugs of the amphetamine group are often combined with barbiturates or with cannabis. Dependency develops with any of the related amine compounds used in the past for the treatment of obesity; durophet, tenuate, preludin, apisate; and also with ephedrine. At present there is a feeling that there are far too many amphetamines in circulation. The medical indications for their use are limited.

(b) The greatest danger, in terms of the rapid development of dependency, is from the

intravenous use of amphetamines. "Mainlining" with methedrine has increased, particularly amongst young drug users. As in the case of "Mainliners" on heroin, there appears to be some gratification and excitement involved in the use of syringe or injection, some addicts drawing back and producing blood several times before injection of the methedrine.

(c) The amphetamines produce a state of alertness and excitement, often with feelings of grandeur. This effect gives them enormous appeal to individuals who have feelings of inadequacy or a combination of social inhibition and grandiose fantasy. Physical signs include tachycardia, hypertension, weight loss, pupillary dilation and motor restlessness. Tension and insomnia often accompany sustained usage, leading to the combined use of barbiturates.

(d) Overdosage or excessive use is likely to produce an acute psychosis, usually with paranoid features resembling schizophrenia. The treatment is similar to that described for cocaine psychosis.

Hallucinogens

Expectation plays a part in the kind of experience people have with these drugs. Some describe "beautiful sensory experiences" and "magnificent thoughts", accompanied by characteristic visual hallucinations. A "bad trip" can follow, however, with an overwhelming fear of disintegration or of a menacing environment. Disturbed behaviour may be associated with the distortion of experience and lead to dangerous situations and psychosis can be precipitated by these substances in vulnerable individuals. The long term effects are not yet known.

The treatment of an acute disturbance following the ingestion of an hallucinogen should be along the lines of treatment for acute psychosis. Chlorpromazine 100 mg intramuscularly, every six hours or four hours should be used as an emergency measure.

(a) *Cannabis*

Cannabis induces a loss of time sense, disorientation and, in some people, elation. It is usually consumed in groups. Smokers may be found to be drowsy, with tremor, nystagmus and ataxia. Hallucinoses can be induced and overdosage may produce a paranoid psychosis accompanied by diarrhoea, vomiting, hyperhidrosis and tachycardia.

(b) *Lysergic acid diethylamide (LSD)*

LSD is a synthetic drug which is effective in minute doses (25 nanograms), though tolerance develops fairly rapidly. LSD is taken on sugar lumps or on blotting paper, to which a small quantity has been added, by mouth. Its effects may continue for many hours. Like mescaline, it induces an hallucinosis with varying emotional accompaniments and may precipitate a psychosis which continues for some time.

Other hallucinogens, including psilocybin, derived from a mushroom, the alkaloids of South American Morning Glory seeds, nutmeg and "S.T.D.", have been used in an experimental way. They all share the same dangers in varying degrees.

Discussion

The effects of drugs may be much modified by routes of administration and by other factors affecting absorption (Binns (1971)). Alimentary administration is slow

and capricious but generally very efficient and is normally used by most drug addicts, such as alcoholics and barbiturate addicts. Most drugs are absorbed by passive diffusion. The efficiency of the process is affected by the state of the absorptive surfaces, particularly in the jejunum intestinal motility, intestinal content and by the concentration, dose and solubility of the drug. When administration is by inhalation, absorption is extremely rapid. This route is commonly used for tobacco, cannabis and the various anaesthetic agents and solvents. It is affected by solubility, partial pressures, rates of pulmonary ventilation and perfusion and by the kind of dispersion in the inspired air. Absorption through the nasal and oral mucous membranes is used commonly for tobacco, whether chewed or smoked, and for cocaine. The injection routes are quick and sure and are commonly used for heroin, morphine and cocaine. The duration and nature of the effects of the drugs are also affected by protein binding, by the rate of degradation and by excretion. For example, hepatic lysosomal stimulation by alcohol, barbiturates, tranquillisers and various other sedatives causes metabolic effects relating them to each other and to such compounds as the anticoagulants.

Excretion of drugs of addiction by the kidney is of interest in the detection of their use. The morphine group, phenothiazines, tricyclic antidepressants, amphetamines, salicylates, barbiturates and alcohol can be identified more or less readily in urine (Clarke (1971)). LSD cannot be identified in body fluids, the amounts in circulation being infinitesimal. Medical Officers must exercise extreme care in the way they go about obtaining specimens for laboratory analysis and are advised always to obtain the patient's consent in writing, if he is in a state to give it. In the case of the unconscious patient, the doctor must make his own decision in the light of the fact that the welfare of the patient is paramount. There is no legal sanction on the patient if he refuses a specimen, except in the case of alcohol and the Road Traffic Act.

There is no legal obligation to pass on to the police evidence that there has been illicit drug taking but in the military setting responsibility to the community cannot be ignored. The commanding officer of a unit is responsible for the fighting efficiency of his unit and it is the medical officer's duty to assist him in this. There is a duty to report the details of cases of drug addiction to the Home Office through the appropriate medical headquarters.

The recent Defence Council Instruction, Confidential 2 of 71 lays down the policy of Drug Misuse in the Army. A film on Drug Misuse "The Hidden Menace" is now in circulation. The aim of the film is to instruct Officers and N.C.Os on the threat presented to the Army of Drug Misuse.

Control of drug abuse is a matter for many different agencies. If we look at the "Army Health" model for the control of infectious disease, it helps to clarify the picture. There is the source, the vector, the infecting agent and the target. The vector is the pusher, the infecting agent is the drug and the analogy fails only in that, in this case, the target may seek the vector and the infecting agent rather than avoiding them. We are concerned primarily with the target and with the attempt to protect him by educating, isolating and treating him.

With regard to the argument about the wisdom of giving information on drugs to those who are supposedly both ignorant and susceptible, there have been many "discussions about the 'merits' and 'hazards' of providing information on drug dependence to relatively uninformed groups. Intelligent action is unlikely to be fostered

by ignorance or misinformation; nevertheless, (there appears to be) . . . little need to mount intensive preventive educational programmes for the public and its numerous special groups in the absence of actual or potential problems. However, because of the rapidly changing patterns of dependence on alcohol and other drugs, health and welfare officials, and members of the medical profession in particular, must be well informed about the manifestations of all types of drug dependence, the prevention of such dependence and the treatment and rehabilitation of drug-dependent persons" (Cameron 1970). The current Army Board policy is to give one lecture to all recruits in training, stressing the dangers of drugs to the individual and to the service. Further training is given in Field Force units at the discretion of commanding officers.

Those who do become affected by drug dependence are managed according to the merits of the particular case; those in need of treatment being admitted to the appropriate ward of the appropriate hospital. On the other hand, drug dependency in itself is not necessarily regarded as grounds for invaliding and where discharge from the service is necessary, it can be effected administratively.

The purely medical prevention of drug misuse is more important than is sometimes appreciated and it is an unpleasant fact that the great majority of drug "pushers" are medically qualified. This extends beyond the well publicised few who have prescribed with criminal irresponsibility, to the many who issue sedatives and tranquillisers to the importunate and find them effective in satisfying demands if not complaints. One sometimes encounters the suggestion that it is the psychiatrist who is responsible, directly or indirectly, for the issue of tons of these addictive drugs yearly. In fact, it is quite the reverse; the psychiatrist spends his time weaning patients off drugs which they have taken without benefit for years. These substances do not create tranquility nor repose, they merely borrow them from the future:

"Not poppy, nor mandragora,
Nor all the drowsy syrups of the world,
Shall ever medicine thee to that sweet Sleep
Which thou ow'dst yesterday"

(Othello)

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