

## Barbiturate abuse

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*The barbiturates are the drugs most commonly abused, and in his paper Dr d'Orbán gives the general reader a clear, sober account of the drugs so abused, the pattern of abuse and the prevalence of the abuse of barbiturates. Sadly, some addicts add barbiturates to their abuse of other drugs upon which they depend. Dr d'Orbán concludes his survey by telling how those addicted to barbiturates obtain the drugs and the hazards to which they expose themselves.*

Barbiturates first came into medical use in 1903; since then over 2000 derivatives of barbituric acid have been synthesized. The first cases of dependence were reported from Germany in 1912 and in subsequent years there were numerous reports of delirium and withdrawal convulsions from barbiturates. The work of Isbell *et al* (1950) finally established that physical dependence on barbiturates can be experimentally induced. Despite their widespread use as hypnotics and sedatives it is surprising that it should have taken half a century for the medical profession to accept that barbiturates are drugs of dependence. Now, a quarter of a century later, doctors are being persuaded to abandon the use of barbiturate sedatives and hypnotics. The aim is for the profession to introduce voluntary restrictions on prescribing these drugs, as an alternative to legal controls (*British Medical Journal*, 1975). The object of this paper is not to argue the case for or against controls, but merely to examine the available evidence on the abuse of barbiturates and their harmful effects.

### Definitions of drug abuse and drug dependence

Drug abuse has been defined by the World Health Organization (WHO, 1969) as the 'persistent or sporadic excessive use of a drug inconsistent with or unrelated to acceptable medical practice'. It is not always easy to distinguish between abuse and dependence. The spectrum of barbiturate use, abuse and dependence may range from the occasional use of a barbiturate hypnotic at night, through intermittent use during the day leading to intoxication, to intravenous use and to physical dependence. It is useful to recall that daily consumption of the order of 450 mg of a hypnotic barbiturate for a period of eight weeks is likely to give rise to psychic and physical dependence.

### The drugs abused

About 60 barbiturate compounds are used in medicine, of which around 12 to 20 are in common use in various countries. However, the drugs in common use vary from one country to another. The short-acting barbiturates used in anaesthesia have a low abuse potential and their availability is in any case usually limited to hospitals. The long-acting barbiturates such as barbitone and phenobarbitone are used predominantly as anticonvulsants. Dependence on phenobarbitone, although longer in onset, can be severe and at one time abuse of phenobarbitone was not uncommon. However, since the introduction of the more quickly acting hypnotic barbiturates cases of phenobarbitone dependence have become rare. It is the rapidly acting hypnotic barbiturates which lead to intoxication and mood changes (a 'high' or 'buzz') and which are most liable to be abused and cause dependence. There is a marked order of preference for various preparations. In Britain, Tuinal (amylobarbitone and quinalbarbitone) is by far the most popular, followed by Nembutal (pentobarbitone), sodium amyltal (amylobarbitone) and Seconal (quinalbarbitone).

Although we are here primarily concerned with the barbiturates, it is well known that when the availability of an abused drug is restricted abusers may turn to a substitute. It may be some time before doctors become aware of the abuse potential of a less familiar substance. It is therefore important to recall that there are a number of other drugs of differing chemical structure but with pharmacological effects similar to the barbiturates which are also abused and which are liable to give rise to dependence of the barbiturate-alcohol type. These include: (1) chloral derivatives, eg, chloral hydrate, dichloralphenazone (Welldorm) and Triclofos (Tricloryl); (2) piperidinedione derivatives, eg, glutethimide (Doriden) and methyprylone (Noludar); (3) methaqualone, eg, in Mandrax and Melsedin (Methaqualone is controlled under the Misuse of Drugs Act); (4) Meprobamate (Equanil); (5) benzodiazepenes, eg, diazepam (Valium) and nitrazepam (Mogadon). In July 1975 the benzodiazepenes were subjected to controls in the USA, making their unauthorized possession an offence. Of this miscellaneous group of drugs, diazepam is commonly and chloral hydrate and glutethimide are occasionally abused by young drug takers in London.

### Patterns of abuse

As with the amphetamines, there are broadly speaking two types of barbiturate abuser: age and sex are their most obvious distinguishing features. The first group tends to be aged over 45 and predominantly female. Many have become dependent on barbiturates during the course of medical treatment. The spectrum of their barbiturate use may range from the socially stable, middle-aged housewife in regular receipt of a small prescription of a barbiturate hypnotic, who is psychologically dependent, to the physically dependent massive oral abuser. This group do not inject barbiturates and if they misuse other drugs, these tend to be other depressants of the central nervous system such as benzodiazepenes, alcohol, paraldehyde or chloral. (Many chronic alcoholics also use barbiturates.)

The second group are predominantly young males who are multiple drug abusers. Barbiturates are not usually their drug of preference; many prefer to take amphetamines if these are available whilst others are primarily dependent on opiates. A variety of reasons may be given for barbiturate use in this group: (1) They may be taken as a substitute for the drug of preference (eg, opiate addicts who run short of their supply). (2) In order to potentiate other drugs, eg, alcohol or opiates, some opiate addicts on a regular maintenance regime who experience little euphoriant effect from opiates use barbiturates in this way to get 'high' or 'stoned'. (3) In order to sleep, eg, after taking amphetamines or other stimulants. (4) Often simply because it is the most readily available potent psychoactive drug.

### Prevalence

Our knowledge of the prevalence of barbiturate abuse and dependence is limited by a number of factors. In the case of opiate-dependent patients the Drugs Branch of the Home Office keeps a central register, but barbiturate dependence is not notifiable. Possession of barbiturates is not a criminal offence and the criminal statistics do not therefore offer any guide to the trends of abuse. Whilst the number of middle-aged users is likely to remain relatively stable over a period of time, the prevalence of barbiturate abuse by young people fluctuates with the constantly changing 'drug scene' and is subject also to considerable geographical variation.

Ten years ago, there were an estimated 100 000 persons dependent on barbiturates and a further 500 000 were thought to be using barbiturates regularly without developing dependence (Bewley, 1966). Two surveys carried out in the 1960s in general practice showed that at that time the majority of barbiturate-dependent patients belonged to the first group (middle-aged women). Adams *et al* (1966) in a London general practice of 10 000 found that 4 per cent of the patients were in receipt

of prescriptions for barbiturates and 58 per cent of these had been taking barbiturates for more than a year; the majority of patients were aged over 40 and female. Johnson and Clift (1968) surveyed a practice in a northern industrial town. Ninety-seven patients (1.3 per cent) were receiving regular prescriptions for hypnotics (about three-quarters of these were on barbiturates). Only two patients were severely dependent but at the other end of the scale only four patients were able to discontinue their drug. Thus the great majority were to some extent psychologically dependent; they had been on hypnotics for a mean period of 5.6 years. In this survey too the patients were predominantly elderly (mean age 62.7 years) and female. More recent evidence about the pattern of barbiturate use in a localized area comes from a survey of pharmacies in Bradford (Court, 1974). About 5 per cent of prescriptions were for barbiturates but they were dispensed mostly to patients aged over 45 and 80 per cent of prescriptions were issued to a group of long-term barbiturate users who were well known to the pharmacist. The younger long-term users were for the most part epileptics on treatment with anticonvulsant barbiturates.

Further evidence about the extent of barbiturate use comes from data on prescriptions. There is evidence that the prescribing habits of general practitioners are changing. Howie (1975) has shown that between 1968 and 1973 the total number of prescriptions for hypnotic drugs has remained constant at around 18 million. However, the benzodiazepenes (notably nitrazepam) have increasingly replaced the barbiturates, so that in the six-year period surveyed the ratio of barbiturates to benzodiazepenes has declined from 9.7 : 1 to 1.5 : 1.

Yet this apparently reassuring picture conceals the increase in barbiturate abuse by young multiple drug abusers. The extent of their abuse varies greatly from one area to another and is related to social factors, police activity and the availability of other illicit drugs. In London the 'drug scene' during the past four years has shifted away from Piccadilly to west London. Reports from casualty departments and from the police suggest that there has also been a spread of barbiturate abuse (including intravenous use) to areas of northern England and Scotland where the problem was previously unknown. In 1974 over 50 per cent of police forces in England reported misuse of barbiturates and 15 of them reported intravenous use. Tuinal was the commonest barbiturate used (Mitchell and Rose, 1975). Although this group of abusers is probably quite small compared to the first group (the 'middle-aged housewife'), the severely disruptive effects of their drug abuse makes them much more conspicuous.

### Barbiturate abuse by opiate addicts

Among multiple drug abusers opiate addicts

attending drug dependence clinics are at the extreme end of the spectrum of drug experience. They are also a group who are under regular medical supervision at their clinic, and it is about this group that some data are available on their barbiturate abuse. The recent history of barbiturate abuse by the London addict population illustrates the way in which restriction of an abused drug leads addicts to turn to a substitute. Several studies show the increasing frequency of barbiturate abuse by opiate addicts over the period 1963-70 (Zacune and Hensman, 1971). Intravenous barbiturate abuse became a serious problem during 1969-72, following the restrictions on methylamphetamine which were introduced in October 1968. As a result there was a small epidemic of intravenous barbiturate abuse, at that time largely confined to London. Mitcheson *et al* (1970) conducted a study of sedative abuse among London heroin addicts in 1969. Of 65 patients, 62 had taken barbiturates at one time and 52 of these had injected barbiturates. Three-quarters of the patients had used barbiturates daily at one time and 37 per cent had used them daily during the month preceding the interview.

Barbiturate abuse, especially by the intravenous route, is associated with a very high mortality rate. In the majority of deaths of opiate addicts barbiturates are implicated (Gardner, 1970; d'Orbán, 1974a). Although barbiturates remained readily available to addicts, by 1973-74 intravenous barbiturate abuse began to decline (d'Orbán, 1974b). However, oral barbiturate abuse by opiate addicts continued and appeared to be linked with the lesser availability of Mandrax and later of amphetamines and methylphenidate (Ritalin). Thus in the same way that intravenous barbiturate abuse replaced intravenous methylamphetamine, oral barbiturate abuse has now replaced oral amphetamines and Mandrax. Currently among opiate addicts attending treatment clinics, barbiturate abuse is the most serious problem. Replies to a questionnaire sent to London drug dependence clinics in September 1975 showed that on average 37 per cent of patients were abusing barbiturates. In 15 per cent barbiturate abuse was a serious problem in their management as it led to intoxicated behaviour, frequent overdoses necessitating treatment in a casualty department or admission to hospital, physical complications and physical dependence.

### Sources and availability

There are three main sources of barbiturates on the illicit market: thefts from pharmacies, stolen and forged prescriptions, and legitimately prescribed barbiturates which are then sold or exchanged for other drugs. In some areas of south-eastern England thefts from chemists are reported to be particularly common. Reduced prescribing by doctors may have a secondary effect in preventing

barbiturate abuse as chemists would then have less need to keep large stocks. However, there can be no doubt that most of the barbiturates circulating among young drug abusers originate from doctors' prescriptions. Several studies show that barbiturates are among the most easily obtainable drugs. Blumberg *et al* (1974) interviewed 210 patients who approached London drug dependence clinics in 1971 with a view to being given a prescription for opiates. Over 90 per cent of these patients had taken oral hypnotic drugs. Despite the fact that of 13 types of drugs about which they were questioned, injectable 'sleepers' were the least popular; 83 per cent of patients had a history of injecting these drugs. 'Sleepers' were rated by the patients as being the easiest drug to obtain. Two years later (in 1973) Bewley *et al* (1975) investigated the abuse of psychotropic drugs by patients attending two London drug dependence clinics. They showed that at that time, next to minor tranquillizers and nitrazepam, barbiturates were rated by half the patients as being the easiest drug to obtain from general practitioners. In contrast, three-quarters of the patients found it difficult to obtain amphetamines.

The black market price of drugs can be taken as a fair measure of their availability. The average price of a capsule of Tuinal has increased from 15p in 1973 to 25p at present. Taking inflation into account this does not suggest that Tuinal has been priced out of the market. It is a paradox that the relatively easy availability of barbiturates and their increased abuse since 1968 should have coincided with a marked reduction in barbiturate prescribing during the same period. The national prescribing figures may not necessarily reflect the situation in local areas such as London. The reputation of the occasional liberal prescriber can rapidly spread on the grapevine and attract other addicts.

### Methods of obtaining barbiturates

Addicts are highly skilled in the art of inducing the general practitioner to prescribe psychotropic drugs. Bewley *et al* (1975) describe one way in which drugs are obtained. The drug taker visits a general practitioner who has previously prescribed psychotropic drugs for a friend and is therefore regarded as a potentially 'easy touch'. He chooses to visit at a time when there is a busy surgery and the doctor may be under some pressure. He registers as a temporary patient giving his correct name but a false address: if he is subsequently arrested by the police the drugs will have his name on the container. He claims that he has been prescribed barbiturates for insomnia by his general practitioner in a distant city from which he has recently moved. He may relate a story of personal tragedy to arouse sympathy. If the doctor is reluctant to prescribe the patient may adopt a threatening attitude and indicate that he will not leave without creating a

disturbance. With little time and a full waiting room, compliance with the patient's demands may seem to be the quickest and easiest solution. However, the chances are that the patient will return and also that he will send some of his friends along. It was found that 77 per cent of the patients in this survey visited practitioners who had been known to prescribe for other drug abusers, and 88 per cent of those who were given a prescription returned to the doctor for further prescriptions. Thus what at first sight seemed the easiest solution turned out in the long run to create more problems than it solved.

There are a number of variations on this theme; one is the use of 'moral pressure'. Edwards (1974) describes how the patient can induce guilt in the doctor by implying that if he does not receive help (help being equated with drugs) he will be driven to crime to obtain his supplies and that this will then be the doctor's fault. Edwards points out that whether or not the doctor prescribes he risks being made a scapegoat for the failure of others. 'If he refuses to prescribe it is implied that he is unsympathetic and uncaring; if he does prescribe he is suspected of running a clinic for "kicks" and he is the target of blame for contributing to the spread of the drug problem and for the complications that may result.'

Some patients who aim to obtain barbiturates now start by requesting benzodiazepenes. One consummate expert in deception, who had the advantage of a provincial accent and whose appearance did not arouse suspicion, would register as a temporary patient and request Valium. If the doctor was willing to prescribe this he would then mention almost as an afterthought that his general practitioner in the provinces was also giving him 'some red and blue capsules which were for sleeping'; he would deliberately avoid mentioning their name in order not to arouse suspicion. Patients who obtain drugs by such methods often remove the chemist's name from the label on the bottle; if they are then admitted to hospital with an overdose it is impossible to trace the doctor who prescribed for them and to inform him of the situation.

What is the fate of drugs prescribed? Bewley *et al* (1975) found that on the patients' own admission, only 39 per cent used all the drugs themselves. The remaining 61 per cent sold, exchanged or gave away some or all the drugs they obtained.

### The hazards of barbiturate abuse

The aim of the barbiturate abuser is to get 'high' or 'stoned'. Acute or chronic intoxication with barbiturates leads to defective judgment, confusion and loss of emotional control. Disinhibited and aggressive behaviour may render the patient liable to arrest for assaultive or disorderly conduct. There is a risk of traffic accidents and other types of accident or injury. A number of deaths and

serious injuries have resulted from fires started by intoxicated patients who smoke in bed.

Intravenous barbiturate abuse has a particularly high risk of morbidity and mortality. Some of the complications are due to unsterile self-injection, eg, septicaemia, endocarditis and hepatitis, and others are more specifically associated with the barbiturates because of their irritant action on the tissues, eg, thrombophlebitis and gangrene. The injection of barbiturates often leads to abscess formation and to necrotic ulceration. The latter has been attributed to lactose and starch additives used in oral barbiturate preparations which are not meant for injection (Vollum, 1970).

Barbiturates are the commonest drug implicated in cases of self-poisoning. It is estimated that of 3000 deaths annually from self-poisoning, 2000 are attributable to barbiturates. Barbiturates are particularly liable to lead to fatal overdose. Abusers may develop physical dependence and tolerance to a daily dose of 2000 to 2500 mg (equivalent to 10 to 12 capsules of Tuinal), but a few are able to take more than this. Tolerance develops to the sedative and mood-altering effects, but no tolerance appears to develop to the respiratory depressant effects: thus the chronic user is as liable to the risk of fatal overdose as the occasional user.

Apart from the risk to the patient, overdose from barbiturates is a very considerable burden on hospitals and casualty departments. A study from the Regional Poisoning Centre in Edinburgh (Forrest and Tarala, 1973) reported that during 1971-72 there were 252 admissions of young drug abusers who were adjudged to have taken drugs 'for kicks'. Barbiturates were the drug most often used and they accounted for 35 per cent of all cases. Tuinal was the most popular barbiturate and was often taken intravenously. A more recent report from the casualty department of the Middlesex Hospital (Mitchell and Rose, 1975) gives an analysis of the drugs involved in cases of overdose seen over a period of eight years. They show an alarming increase in the number of barbiturate overdoses, particularly of Tuinal alone or in combination with other drugs. In the first seven months of 1975, nearly 400 patients were seen, of whom over two-thirds had taken barbiturates. They note that many patients are brought unconscious to the department two or three times in 24 hours.

Finally, it is generally accepted that the risks of barbiturate dependence are serious. It is impossible to know the proportion of abusers who are physically dependent, but abrupt withdrawal of physically dependent patients can lead to withdrawal convulsions and delirium, and withdrawal should always be carried out gradually and in hospital. Thus the abuser who has become dependent is not only at risk from taking barbiturates, but also at risk from not taking them.

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