HABITUATION AND ADDICTION TO AMPHETAMINES

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The group of amphetamine drugs has been available since 1935. Used at first for narcolepsy, they have since found a place in the treatment of barbiturate poisoning, nocturnal enuresis, epilepsy, behaviour disorders, neurasthenic and depressive syndromes, and post-encephalitic Parkinsonism as well as such relatively normal states as fatigue when driving or in combat, obesity, and hangovers. The amphetamines in general are prescribed readily and light-heartedly, and indeed there is official support for such a practice. The Ministry of Health's Annual Report for 1954 included this statement: "The drugs of this group [that is, the amphetamines] have the advantage of being relatively non-toxic, addiction to them is rare, and there are no serious ill-effects; they may therefore be given to out-patients without undue risk." Leake (1958) states: "Gradually, as experience with the amphetamines has ripened they have become firmly established as versatile and helpful remedies given to millions of people and under such conditions as to offer remarkably low potential for causing harm or unwanted effects."

In an answer given in the *British Medical Journal* (1961) it was noted that "true addiction to the amphetamines probably does not occur," and that "there would appear to be no particular reason why this preparation should not be continued indefinitely"; and Stungo (1961) states that a number of long-term studies have failed to reveal any evidence of either addiction or true habituation to the amphetamines, and later adds, "it can accordingly be categorically stated that addiction or habituation to amphetamines alone is extremely rare."

It is the purpose of this paper to demonstrate that these statements are dangerously inaccurate and that a considerable abuse of the amphetamines and of phenmetrazine exists, habituation and addiction occurring very frequently in our society.

Amphetamine Psychosis

The most striking psychiatric complication of excessive consumption of these drugs is the occurrence of an amphetamine psychosis, which usually takes the form of a schizophrenic-like illness. Although these cases are now quite well documented (Connell, 1958; Askevöld, 1959; Beamish and Kiloh, 1960) their frequency is still not realized even by psychiatrists, and they are often misdiagnosed. Yet in a period of three years 12 such cases have been treated in the department of psychological medicine, Newcastle General Hospital, the yearly admission rate to which is approximately 600. Psychoses are nearly always associated with prolonged consumption of amphetamine in a daily dosage of 100 to 500 mg. The minimum daily dose recorded as associated with a psychosis is 20 mg. and the smallest single dose to be followed by such symptoms is 50 mg. Many patients seem capable of taking 300 to 500 mg. of amphetamine daily for long periods without developing psychotic features, and examples have been recorded in which as much as 1,700 mg. daily has been taken without obvious ill effects.

It was such dramatic cases as these that prompted an interest in the effects of the amphetamines and of phenmetrazine, and we were soon aware that an appreciable number of the patients admitted to our in-patient unit were taking quite large quantities of these preparations, though few volunteered this information. In some of these the drug consumption appeared to play a part in the genesis and symptomatology of the psychiatric disturbance demanding admission. This group differed in various respects from those presenting with frank psychoses. The most obvious difference was in sex incidence. Whereas psychoses were seen more often in men, these other patients were for the most part women. Personality difficulties were just as common but their form differed. The men tended to be frankly psychopathic, the women chronically neurotic, lacking in confidence, subject to neurasthenic reactions, or prone to react to adverse circumstances with depression. The amphetamines, perhaps by some direct effect or possibly because of a resulting increase in social difficulties, often appeared to aggravate their unstable behaviour.

One patient, a man aged 28, was referred by his general practitioner with a diagnosis of psychotic depression of many years' standing for which "drinamyl" (dexamphetamine sulphate 5 mg. with amylobarbitone 32 mg.) had been prescribed eight years previously. For 10 months before admission he had taken up to 100 tablets daily and sometimes took excessive amounts of barbiturates as well. There was no evidence that he was suffering from an endogenous depression, and prominent features of his history were a very poor work record and a series of marital misfortunes—all of which appeared predictable from a knowledge of his personality structure.

The same instability, work record, and history of marital discord was obtained from a woman of 41. She too was easily tilted into depression by adverse circumstances, and when 33 years old she began to take dexamphetamine because of increasing obesity. She quickly appreciated its other effects. She found that any reduction in her 10 tablets a day rendered her depressed and drowsy. At a time when the extent of her amphetamine intake was not realized the question of an underlying depression was thought to be serious enough to justify a course of E.C.T. Later, when some of her symptoms returned, it was noted—"She does extremely well on drinamyl." One feature she showed is characteristic of a substantial proportion of these patients—the importunate demands she made for prescriptions—both directly and by letters.

How many such patients are admitted to psychiatric units and how many exist in the community it is impossible to say, for often no one but the patient knows the amount of drug being consumed and, not surprisingly, she is frequently reticent about it and as often as not is prepared to deny flatly that amphetamines are being taken at all.

It was felt that it would be of interest to calculate the amount of amphetamine prescribed in Newcastle upon Tyne, to investigate the methods used by patients to obtain their supplies, and to estimate the incidence of habituation and addiction in the population.

Estimate of Amphetamines Prescribed

All E.C.10 forms find their way to the Joint Pricing Committee in England, and by the courtesy of the Clerk to the Committee we were allowed to scrutinize those dispensed by all pharmacists in Newcastle upon Tyne for patients living within the city boundaries during the months of May and November, 1960. The population of Newcastle upon Tyne is 269,389 (Registrar-General, 1961). All preparations known to contain amphetamine or its derivatives, 40 in all, were listed and all scripts for these preparations put on one side. Of a total of 119,208 scripts for May, 4,052 (3.4%) were for one or other of the amphetamine preparations, while for November 3,077 prescriptions for amphetamines were issued out of a total of 121,126 (2.5%). In addition, the amount of amphetamines prescribed at the Royal Victoria Infirmary and the Newcastle General Hospital to both in-patients and out-patients was ascertained. Calculation of the total quantity of amphetamines prescribed in these preparations shows them to be equivalent to 223,500 5-mg. tablets of amphetamine sulphate in May and to 176,000 in November. In other words, the average monthly quantity of amphetamines prescribed is approximately 200,000 5-mg. tablets, 53% of which are dispensed as drinamyl. This is clearly a minimal figure. No allowance is made for amphetamine preparations prescribed privately, for any that might be obtained in various ways without prescription, or for supplies obtained by Newcastle residents outside the city boundaries. On the other hand, it cannot be assumed that all the tablets prescribed were consumed.

Methods Employed to Obtain Extra Quantities

So far as one can tell there is no organized illicit sale of amphetamine preparations, but there are certainly many small-scale operatives who obtain tablets from their doctors and retail them profitably. One of our patients paid a neighbour, who was well known locally as a supplier of drinamyl, 14 shillings for 50 tablets. Another bought her tablets at threepence each from a fellow-worker in her factory. Many patients have been given their first tablet by a friend when feeling tired and miserable, and the brightening effect has caused them to seek out their doctor, often tablet in hand, to request a further supply. A surprising number seem to owe their induction to their hairdressers, either following a complaint of feeling low or more commonly as the result of developing acute feelings of panic under a hairdrier. Three patients have given this same story.

Most patients obtain their tablets through doctors, but as soon as the usual two or three tablets a day which are prescribed become insufficient, there are a number of procedures which may be adopted. Some of these are possible only because of the system, which is especially prevalent in industrial areas, whereby a patient is attached to a practice rather than to an individual doctor. Consequently she may see any one of three or four doctors, and if she arranges her visits with sufficient care she may see them all in turn and obtain supplies from each. For the same reason it may be possible to claim repeatedly that prescriptions have been lost. One patient, a middle-aged housewife, who found the care of her very large family burdensome, called upon her doctor and asked for drinamyl. She had attended the previous evening and had been given a prescription. When this was pointed out to her she said she had lost it. Investigation of her records showed that in the previous few months she had lost prescriptions given by various members of the partnership on six occasions. Another frequent claim is that the tablets themselves have been lost. The patient may insist that the baby has thrown them on the fire or that she forgot to take them out of her apron pocket before putting it in the wash. Other equally plausible tales are frequent.

A common device is to obtain multiple prescriptions for various members of the family, and in one case it was found that the patient, her mother, her mother-in-law, and her eldest daughter were being given regular prescriptions for drinamyl. The patient collected them and the other members of the family remained unaware of her activities. Another method is to register with a number of different doctors, using false names if necessary. One patient was traced on the lists of 15 doctors; and another was finally charged with three offences of obtaining prescriptions under false pretences. She would visit a doctor, claiming that she had only recently arrived from Eire and had not had time to register with a general practitioner. She said that she needed drinamyl and was given it. She pleaded guilty and asked for 23 similar cases to be taken into consideration. From her story it appears that only one doctor refused a prescription.

There is little subtlety about any of these methods, and it is only by comparison that the method used by one housewife achieves distinction. She walked into a chemist's shop and handed over a bottle of white sugar-coated tablets, saying that she thought there must have been a mistake. She claimed that she had been given these tablets the night before and that they were quite different from her usual blue heart-shaped tablets. The chemist looked up her prescription—it was for drinamyl. The shop was busy, and there being no time to look into the matter he gave her a supply. Later the matter was investigated. The dispenser who had dealt with the prescription in the first place was sure that he had supplied drinamyl. The white tablets proved to be cascara, and examination of the stock bottle of this showed it to be full and undisturbed: the reduced popularity of purgatives is one of the benefits one must offset against the increased consumption of these more potent remedies. This is a trick that could be used almost indefinitely in a large town, there being no restriction regarding which pharmacist the patient shall take the doctor's prescription to.

Alteration of prescriptions by the patient is also practised occasionally. Usually it is one of the figures that is changed, and it is possible that this occurs more often than is realized. It is when the result is somewhat ludicrous that discovery becomes likely, as when a patient altered a prescription for 10 tablets into one for 19. Actual forging of prescriptions is occurring more and more frequently. After stealing blank E.C.10 forms the patient writes out her own prescription. Cases have occurred when a genuine prescription is obtained from a doctor and the name of the drug bleached out and that of one of the amphetamine preparations substituted. Many examples of forged prescriptions detected by pharmacists are referred back to their general practitioners and only a small proportion find their way to the police.

In Newcastle upon Tyne from July, 1959, to June, 1960, no case involving false pretences or the forging of prescriptions was reported to the police. Between

July, 1960, and June, 1961, 11 such cases were reported; all were women and seven of them were successfully prosecuted. Between July and December, 1961, 11 further cases were reported to the police and 10 cases, including eight females, were prosecuted. The situation in neighbouring county boroughs is comparable.

Responsibility

The patients are not the only ones to carry responsibility for the present state of affairs. Only a small proportion of the blame can be placed on the retail pharmacists, though they might do more to attract attention to abuse of these drugs as they are in the best position to detect cases. We have been assured by one or two patients that they have obtained tablets from certain chemists without prescriptions, but they insisted that they had lost their supply, so this may be no more than an example of unwise credulity. Some pharmacists, too, appear to allow private prescriptions to be used repeatedly and fail to cancel them. In other parts of the country it may be otherwise, and Chazan (1961) remarks that his patients seemed to have no difficulty in obtaining these drugs from chemists without prescriptions.

Regrettably the doctors must carry rather more of the responsibility, and undue credulity is an excuse for only a proportion of the cases. Many supply amphetamines far too readily and accept the suggestions of the patients regarding their medication uncritically. One prescription scrutinized was for 500 tablets of drinamyl prescribed 1 b.d.—and it was not unique. Many doctors have had the experience of interviewing a patient who has requested a transfer to their list. After the formalities have been terminated the patient produces the inevitable tablet and asks for a further supply. It is rare for a doctor to refuse. The example already quoted of the girl from Eire who obtained tablets from 26 doctors is a sufficient indication. Nor do all doctors insist on seeing the patient before issuing a prescription; some are prepared to give one—or at least renew one—on receipt of a message brought by a relative. Many of the difficulties experienced by doctors stem from the *per caput* method of payment. To refuse a patient what she wants is to lose a year's payment not only for that patient but in all probability for the other members of the family. It is seldom necessary for the patient to utter the actual threat—though this does happen—it is implicit in the total situation.

Habituation and Addiction

Drug addiction is defined by the W.H.O. Expert Committee on Addiction-producing Drugs (1957) as a state of periodic or chronic intoxication produced by the repeated consumption of a drug. Its characteristics include (1) an overpowering desire or need (compulsion) to continue taking the drug and to obtain it by any means, (2) a tendency to increase the dose, (3) a psychological and generally a physical dependence on the effects of the drug, and (4) a detrimental effect on the individual and on society. It must be conceded that a number of patients taking excessive quantities of amphetamine fulfil this definition. They certainly suffer an overpowering desire to continue taking the drug, they take it in amounts far exceeding the usual therapeutic dose, they may be prepared to break the law to obtain supplies, they are dependent upon it, and they sometimes become psychotic. Furthermore, withdrawal symptoms may occur, notably states of depression in which suicide may occur.

Nevertheless, in the majority it would be more reasonable to regard these patients as habituated rather than addicted, though the distinction is only a quantitative one and largely a matter of definition.

The following two cases are representative.

Case 1

A 36-year-old woman began to take dexamphetamine as an aid to slimming 10 years ago in amounts of up to 200 mg. daily. Even so, there were periods when she remained drowsy and depressed and she failed to lose weight. After four years she stole an E.C.10 form from her doctor's surgery and wrote out a prescription. This was detected by the pharmacist, who called the police. Her supply of tablets was withdrawn. For four weeks she was confined to bed in a state of collapse, showing marked hypersomnia, and subsequently made a slow return to her normal state.

Two years ago she asked her general practitioner for non-habit-forming slimming tablets and was given phenmetrazine. She soon found that she could not manage without these as she felt "depressed and flat" in spite of a daily intake of 30 tablets. She stole a pad of E.C.10 forms from a doctor whom she attended as a temporary patient to get an extra supply of tablets, and continued to use it for a year before being caught. During this time she was noted to be restless, overactive, irritable, and unable to settle, doing her housework in spurts. After the withdrawal of her tablets on admission to hospital she became depersonalized, depressed, and sleepy, experienced vivid hypnagogic hallucinations on closing her eyes, and complained that her body felt huge. These features improved after a week, but for a further 10 days or so she felt "flat" and that she could anticipate people's words and actions, and seemed to know what was going to happen.

Case 2

A 26-year-old woman was referred as an emergency. Her husband had left her and taken their 17-months-old child away as he regarded her as unfit to care for the child. In the past she had had a great deal of physical ill-health. A left lobectomy was performed for bronchiectasis when she was 21, and a year later she had partial gastrectomy for a peptic ulcer. She married at 21, and after the death of her 2-months-old child in the second year of her marriage she became irritable, moody, and prone to periods of depression. Her housekeeping deteriorated and she seemed unable to manage. She became involved in apparently inexplicable debts. On the birth of her second child she became more depressed and was admitted to a mental hospital, where she was given E.C.T. After her discharge her personal standards and general health deteriorated. She remained prone to spells of depression but at other times appeared euphoric and overactive, sometimes going for several nights without sleep. One one occasion her husband awoke to find her painting the caravan in which they lived, in the dark. Despite a substantial housekeeping allowance she was unable to manage and was found to be stealing money from a neighbour.

Subsequently her husband discovered that after the death of her first child she had been introduced to drinamyl by her father, who thereafter sold her tablets and introduced her to other suppliers. She also obtained supplies from her doctor and on at least one occasion got an extra supply after claiming that she had lost her tablets. On admission the patient was emaciated, filthy, untidily dressed, and looked ill. She was very anaemic, with oedema of her hands and feet secondary to malnutrition; she was depressed and tearful and demanded only the return of her child and to be "cured of the tablets." On questioning about her drug consumption she was evasive, claimed that she had never taken more than 10 tablets a day, and admitted that she would not have sought treatment but for the domestic crisis.

Extent of Addiction

An investigation undertaken in conjunction with the North-East Faculty of the College of General Practitioners into the amounts of amphetamine prescribed, and the reasons for doing so, allows an estimate to be made of the extent of habituation and addiction to amphetamines. Rather less than 1% of all registered patients in the practices investigated were receiving amphetamines. Extrapolating these figures—with due appreciation of all the dangers inherent in such a process—it suggests that in Newcastle upon Tyne approximately 2,600 individuals are receiving such preparations at any one time. The monthly consumption of 200,000 tablets by this number of patients indicates a rate of 77 tablets a month per patient—a not unreasonable figure. Of those for whom amphetamines are prescribed, 15.3% are males and 84.7% females; the latter are commonly housewives with growing families, showing a peak incidence in the age-group 36–45 years. The general practitioners taking part in this investigation estimated that of these patients rather more than 20% could be regarded as habituated or addicted, having received the drug for prolonged periods, showing dependence upon it, and proving resistant to its withdrawal. So far as the general practitioners were aware, these patients were consuming the drug in moderate dosage only, but it can be assumed that some were obtaining extra supplies. It would seem that there are in Newcastle upon Tyne approximately 520 patients habituated to amphetamine.

The reasons given by these patients for taking amphetamines are relatively few. Depression, fatigue, obesity, and, surprisingly, anxiety are the most common; less frequently the patient may admit that the drug is taken to stay awake, to "pep up," or occasionally to delay ejaculation.

Effects Associated with Excessive Amphetamine Consumption

The most dramatic and perhaps the most serious ill effect of excessive amphetamine consumption is the development of a psychosis. In other cases the drug appears to be responsible for the precipitation or aggravation of an existing psychiatric abnormality. Similar aggravation may follow withdrawal of the drug. A number of harmful social consequences may occur in these cases. The patients may commit crimes, such as forgery, to obtain supplies of tablets, or they may steal or divert their housekeeping money to buy them. Not infrequently this reflects upon their families.

Such ill effects are evident in many of these patients, yet it is surprising how many continue to take these substances for prolonged periods without apparent harm, particularly when the quantity is moderate. A comparison with alcohol is not inapt. Amphetamines and alcohol are often taken for similar reasons and under similar circumstances. There is no doubt that many of the regular consumers of amphetamines find them a counter to the vicissitudes of life, and a source of relief from the monotony, tedium, and frustrations of family life.

But even if one has to admit there are some dubious benefits, they are completely offset by one very harmful result. Some of the more thoughtful general practitioners are aware that their integrity is being undermined. Frequently they are faced with the decision whether to give in to the demands of patients for these substances or to face a reduction in their income. As one doctor said, "I feel my self-respect is being nibbled away."

Conclusion

The abuse of amphetamines in Newcastle upon Tyne is a problem of appreciable size and one that is growing. For the most part it is covert and there seems to be little general appreciation of its existence. There is no reason to suppose that Newcastle upon Tyne is unique in this matter, and it is likely that the problem is a national and not merely a local one.

Wider recognition, particularly by general practitioners, of the potentiality that the amphetamines are drugs to which patients can become habituated or addicted should lead to increased caution in their prescription. Appreciation that these drugs are of limited value in the treatment of obesity (Yudkin, 1961) and are of little use or may be harmful in the treatment of endogenous depression (Roberts, 1959) should also lead to a restriction in their use.

The members of a considerable segment of the population—those who are chronically anxious and those who readily become depressed—often experience a lessening of their daily anxieties and tedium when taking amphetamines or related drugs. Once introduced to these preparations, some are prepared to go to extraordinary lengths to obtain adequate supplies. These patients are in need of psychiatric assessment and treatment, and, though the latter must often be limited in its aims, in view of the fact that so many of this group are suffering from personality disorders, they are likely to obtain more help from a sensible multidimensional approach with due accord to the relevant social factors than by what often amounts to self-medication with stimulants.

Summary

The equivalent of 200,000 5-mg. tablets of amphetamine sulphate is prescribed to a population of 269,389 each month in Newcastle upon Tyne.

There is evidence that many patients take far more than normal therapeutic doses, and the methods by which they obtain their supplies are reviewed. The number of cases brought to the notice of the police is increasing steadily and is giving rise to some concern.

Habituation and addiction to the amphetamines are common, and in all probability there are rather more than 500 such cases in Newcastle upon Tyne at present.

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