Drug Treatment of Disease

ADDICTION TO DRUGS: PART I

BY

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While the problem of addiction has never been large in Great Britain there has been always within living memory a core of addicts to alcohol, to morphine and its derivatives, to cocaine, and, in very small numbers, to chloral and paraldehyde.

It is to be expected that newly introduced drugs may give rise to new addictions, but the number that actually do so seems to be small. Yet some new addictions have developed over the last twenty-five years. Thus, addiction to the barbiturates has made its appearance since, thirty years after their original introduction, they achieved therapeutic popularity in the 1930's. In 1935 came the first clinical application of amphetamine (for narcolepsy), and, as its stimulating properties became known to a wider public, abuse and addiction were found to occur. Subsequently, the hopes that the newer morphine derivatives, dihydromorphinone ("dilaudid") and levorphanol ("dromoran") were non-addictive were found not to be based on fact. When pethidine (a piperidine derivative) came to be widely used as an alternative, pethidine addiction followed. Likewise, when the synthetic analgesics methadone ("physeptone") and phenadoxone ("heptalgin") were developed, these too were found to be addictive. More recently addiction has been noted, though to no important extent, to methylpentynol ("oblivon") and to carbromal with bromvaletone ("persomnia"); the former could at first be obtained without prescription, the latter is still thus obtainable.

Of these new addictions, that to pethidine is the most dangerous in that it tends to be severe, but methadone, phenadoxone, dihydromorphinone, and levorphanol are also drugs that have their dangers. Addiction to barbiturates is no doubt commoner, but is remarkably rare in Britain considering the prodigal amounts that are prescribed. Such addicts often combine it, as do those addicted to morphine and its derivatives, with amphetamine addiction, one substance being used to offset the effects of the other, though amphetamine addiction can also occur alone. Methylpentynol and carbromal with bromvaletone are usually taken by addicts as adjuvants to more powerful substances, or as being better than nothing when other supplies have failed.

Nature of Addiction

Addiction may be said to be established when the drug has become a necessity to the patient. He cannot do without it because he cannot tolerate the symptoms that occur in its absence. An example is the established alcoholic who needs a morning dose to offset the shakiness and anxiety that have arisen from the previous day's excesses. He has become physiologically dependent on the addictive substance for his well-being—more accurately for his well-feeling—and the extent of the dependence will vary according to (1) the severity of the symptoms that result from abstinence, and (2) the

extent to which the particular personality can tolerate them. Patients with a low tolerance of discomforts and frustrations are those more likely to be addicts, just as they are those more likely to turn to drugs in the first place. The development of addiction, in fact, depends much on the personality. The form of the addiction depends more on circumstances and opportunity. The symptoms will depend on what type of addiction has resulted from the circumstances and opportunities with which the particular personality has been confronted. Little is known of the precise manner in which physiological dependence comes about, but it certainly seems to occur, and that it does so is an indication that the problem of addiction involves far more complicated factors than simple weakness of the will.

Symptoms of Addiction

These will vary to some extent with the substances involved. When, as often happens, the patient does not disclose the facts, a clue to the existence of addiction may be afforded by complaints of otherwise inexplicable oscillations of mood coupled with inefficiency in performance, impairment of grasp which may or may not be transient, and periodic "islands" of amnesia with more or less forgetfulness between. These are suggestive of a varying level of intoxication. Thus, a moody employee who gets through less work, deals with it incompletely, and fails to remember on Thursday a person whom he had interviewed and about whom he had made notes on the previous Tuesday, has probably been carrying on under the influence of alcohol or drugs in excessive quantities. There are other possible explanations, but this one should come to mind. The same is true of confusional episodes, especially when an otherwise healthy patient gives a history suggestive of nocturnal delirium. Apart from such general effects of intoxication, there may be specific symptoms.

Addiction to Morphine and its Derivatives.—The appearance of the patient, languid, sallow, undernourished, with loss of hair and brittle nails, may be suggestive. Pin-point pupils and injection marks should be looked for. The mental symptoms are not prominent, and amount to no more than laziness, lack of persistence, day-dreaming, and increasing unscrupulousness. Withdrawal symptoms are very marked. Mentally, these consist of depression, irritability, anxiety with restlessness, and profound malaise. Physically, characteristic symptoms are yawning, irritation in the nose with sniffing and sneezing, salivation, and lacrimation; shivering, tremor, and twitching; variable pains and in particular muscular cramps; and alimentary disturbance in the form of nausea, vomiting, and diarrhoea. The withdrawal syndrome may be distressingly severe. The gradual development of an irritable, restless malaise, followed by sudden cheerful contentment after a brief absence, may suggest addiction when the patient is trying to conceal it.

Addiction to heroin (diacetylmorphine) gives rise to a similar clinical picture, as does addiction to the morphine derivatives levorphanol and dihydromorphinone.

Addiction to Methadone and Phenadoxone.—These synthetic analgesics may be considered here because the effects of addiction to them are in general similar to those caused by addiction to morphine and its derivatives, despite the differences in chemical structure. The withdrawal symptoms, however, tend to be less severe.

Addiction to Cocaine.—The mental symptoms are more prominent. The main effects of the drug are elation and activity, but its continued use leads to marked mental changes. The principal one is the development of hallucinations. These are usually tactile and auditory. Tactile hallucinations as of small animals crawling underneath the skin are a special feature of this addiction, though not invariably present. The auditory hallucinations are more important because they are usually frightening to the patient, lead to various misinterpretations, as in chloral addiction (see below), and so may encourage aggressive retaliation or unpredictable violence. Although such developments tend to be worse at night, the patient may continue hallucinated and misinterpreting for long periods though able to appear more or less normal outwardly, apart from a moody restlessness with an anxious irritability. Acute delirium may supervene later. Physically, pallor and malnutrition are usual, as are injection marks or ulcerations of the nasal mucosa, according to the routes by which the drug is usually taken. Withdrawal symptoms are mild and consist mainly of insomnia, general malaise, and palpitation.

Addiction to Chloral.—Again the mental symptoms are prominent. Apart from moodiness and that slow, muddled state of forgetful inefficiency that we might call fuddledness, the chloral addict also tends to develop auditory hallucinations which form the basis for suspicious misinterpretations, as when D. G. Rossetti believed a cabman to have placed a bell on the roof of the cab to annoy him, and Gilbert Pinfold believed himself to be the centre of a political plot owing to his having heard many complicated pronouncements that were inaudible to other people. The withdrawal symptoms do not seem to be specific or severe. As to *paraldehyde addiction*, there are no special features, and the clinical picture of *alcohol addiction* is too well known to need repetition.

The foregoing, with the addition of the newer morphine derivatives and the synthetic analgesics, are the classical addictions with which doctors have long been more or less familiar. It remains to consider the more modern addictions to pethidine, to the barbiturates, and to amphetamine.

Addiction to Pethidine.—This is the most dangerous of the newer addictions, both because the addiction itself is a severe one and because it carries a considerable mortality. The drug is usually taken in the first place for its analgesic and antispasmodic properties, and if this is long continued the patient experiences withdrawal symptoms of sweating, malaise with anxiety and depression, and a general feeling of heaviness, especially in the limbs, which may also be affected by cramp-like pains. Further and larger doses may then be required to allay these symptoms. With larger doses a confusional state with hallucinations, illusions, and

secondary misinterpretations may develop. The withdrawal symptoms are then more severe, with the addition of tremors and twitchings, and convulsions have been known to occur, as have choreoathetotic movements.

Addiction to Barbiturates.—The patient develops a chronic state of more or less intoxication. The clinical picture varies according to the extent to which the patient is intoxicated, from a disinhibited over-talkativeness with restlessness, to a slow, forgetful fuddledness with, between whiles, an anxious gloom. Larger doses may lead to actual confusion or subdelirium, with amnesic episodes. Physically, there may be slurred speech, ataxia, nystagmus, and generally impaired co-ordination. Withdrawal symptoms consist mainly of anxiety, with tremors, palpitation, postural dizziness, nausea, and vomiting, but if the dosage has been large, withdrawal fits are not uncommon. Rarely, a delirium may follow withdrawal, with a close resemblance to delirium tremens.

Addiction to Amphetamine.—The substance confers a feeling of confidence combined with energy, and a subjective sensation of mental alertness and agility. When the effects wear off, the habitual user experiences a rather intense lethargy and gloom, which leads to a further and often to a larger dose. The cycle is then repeated. The wakefulness induced by the drug causes some patients to turn night into day, pursuing a flurry of activity through the small hours. With large doses deliria with auditory and visual hallucinations can occur, leading, as with other drugs, to misinterpretations usually involving alarm and apprehensiveness.

(To be concluded)

TRIBUTE TO SIR WILFRID LE GROS CLARK

A bronze portrait bust (here illustrated) of Sir Wilfrid le Gros Clark, F.R.S., the work of Sir Jacob Epstein, was presented last week to the Department of Human Anatomy at the University of Oxford to mark the occasion of Sir Wilfrid's silver jubilee as Dr. Lee's Professor of Anatomy.

The portrait bust was commissioned by colleagues, associates, and former pupils of Sir Wilfrid as a tribute to his eminence and leadership in the fields of anatomy and physical anthropology. The presentation was made on the occasion of the opening of the new extensions to the department of human anatomy at Oxford by Sir George Pickering, Regius Professor of Medicine, who said that Sir Wilfrid le Gros Clark had played, and was still playing, a unique part in the revolution that was taking place in the study and teaching of anatomy. The cost of the new department, when completed, is expected to be about £160,000. An impressive feature is the new dissecting-room with its curved roof of heat-resisting glass.