

Practical Psychiatry in Medicine

Part 10. Drug Abuse and the Addictions

Drug dependence is "a state arising from repeated administration of a drug on a periodic or continuous basis."¹⁸ People who are dependent on drugs commonly take them in sufficient amount to experience some degree of intoxication and tend to place their drug taking at a higher priority than many other daily activities. The various classes of drugs are associated with characteristic physical and psychological findings during the period of drug use and during acute abstinence. Drugs commonly implicated in drug dependence include opiates, sedative-hypnotics, amphetamines, cocaine, cannabis, and hallucinogens. We will first discuss features common to all types of drug dependence, and then consider the specific types of drug dependence.

General Information

All drug dependence involves some desire or psychologic need on the part of the drug taker to repeatedly use the substance. This in itself constitutes *psychic dependence*. The drugs causing dependence are all active in the central nervous system, generally altering mood, thought, feeling, or sensation. More specifically, it appears that those drugs most likely to cause dependence have such effects as relief of tension or anxiety, production of sleep, production of elation or euphoria, alteration of sensory perception, reduction of inhibitions in social situations, and change of sexual drives and sensations.

Some classes of drugs, notably opiates and sedatives, also cause *physical dependence* when taken in large enough doses for a sufficient length of time. A person who has developed physical dependence will have a withdrawal or *abstinence* syndrome, a predictable series of physiologic changes which ensue on abrupt cessation of drug taking. The abstinence syndrome

of sedative drug dependence is particularly important to recognize, as it can proceed to delirium or fatal convulsions. The development of physical dependence is accompanied by the development of *tolerance*, the same dose of drug causing a lesser effect after repeated use. Tolerance occurs by two mechanisms: a change in the rate of metabolism of the drug, and an alteration in the cellular receptor site at which the drug acts.

Etiology

There are three categories of etiologic factors in drug dependence: physiologic, psychologic, and social.

Physiologic Factors⁷

The analgesic or sedative effect of drugs, the development of tolerance, and the occurrence of an abstinence syndrome upon discontinuance of drug use are important physiologic factors. It must be stressed, however, that these alone rarely can account for the development of drug dependence, and

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The following chapter has been selected by the Publisher from its forthcoming book, *Practical Psychiatry in Medicine*, by John B. Imboden, MD and John Chapman Urbaitis, MD, in the hope that it will have immediate usefulness to our readers.

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that medically supervised use of opiate analgesics for painful acute illnesses does not lead to drug dependence. As for chronic illnesses, physicians may well decide that a patient's need for relief from severe discomfort outweighs the risks of developing dependence. In fact, studies have indicated that patients are more likely to receive too little rather than too much analgesia in usual hospital practice.

Social Factors⁶

Association with groups of drug-taking people, lack of opportunities for success, and lack of satisfying recreational outlets contribute to the development of drug dependence in many people. Family and community settings in which adults use and come to depend on such drugs as caffeine, nicotine, alcohol, or prescription medications, may influence some children to experiment with drug use. Differences in the incidence of alcoholism in English, French, Irish, and Jewish populations have been observed; reasons for these differences include family attitudes and practices in the use of alcohol.

Psychologic Factors

People who have various psychiatric disorders manifested by feelings of inadequacy, insecurity, anxiety, chronic malaise, or frank psychotic disorganization, may find such relief in the effects of some self-administered drugs that they become drug dependent.

Wikler has noted a conditioning effect; after months of documented abstinence, a former heroin user may experience the physical sensations of withdrawal and drug craving when he walks down a street where he was usually walk-

ing while beginning to suffer acute abstinence, on the way to purchase his fresh supply of heroin.¹⁹

Effects

The various classes of drugs produce distinct signs and symptoms, to be described in subsequent sections. Nonetheless, there are certain general effects common in most drug-dependent persons. Foremost is drug-seeking behavior; this often takes precedence over any other activity. The alcoholic may take a drink the first thing in the morning; the heroin user may spend rent or grocery money on heroin. Preoccupation with drug taking, as well as mind-altering effects of the drugs taken, commonly result in impairment in social functioning. The drug-dependent person may not be able to fulfill responsibilities at work or at home. The tension and anxiety from this impairment may be added to the anxiety associated with the psychologic problems which originally led to the drug use; a vicious circle is thus established.

Diagnosis

Making the diagnosis of drug dependence is, of course, the first step in treatment planning. The primary physician is often in an excellent position to find the early signs of the drug dependence. Patients may either come for care of some aspect of or result of their drug taking, or they may present with other illnesses and the physician will diagnose drug dependence as a related or complicating condition.¹⁵ To maintain an appropriate level of curiosity and suspicion, yet to avoid becoming a policeman or inquisitor, is a difficult but necessary accomplishment.

The physician should be alert to patients who come requesting specific remedies, especially sedatives or strong analgesics; he should keep careful records of prescriptions to prevent premature refilling. Patients who have recently consulted a number of other physicians, or who are taking a variety of previously prescribed drugs from several sources, may be drug-dependent persons looking for a new supply of medications, or they may have genuinely difficult medical conditions which have not responded to treatment. A few patients may present with simulated conditions in an attempt to obtain analgesics; the patient who claims to have intractable pain of uncertain origin may be wanting drugs. In other instances, the drug-dependent patient may present with minimal intoxication.

Management

A matter-of-fact, nonjudgmental approach to the patient is essential. He or she needs treatment, and needs sound information on the risks of continuing drug dependence. Only by establishing a professional physician-patient relationship, showing concern for the patient's condition, and gathering a thorough medical history can the physician keep the drug-dependent patient under his care and offer definitive treatment either directly or by referral.

Opiate Dependence

The most notorious but not the most common type of drug dependence is to the opiate class of drugs. Opiate dependence is an important condition because of the personal and family anguish, the

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medical complications associated with heroin use, and the social and economic effects of drug traffic in the community.

Opiates and other synthetic analgesics which can cause opiate-type drug dependence include morphine, heroin (diacetylmorphine), Dilaudid, codeine, opium (a mixture including morphine and codeine), meperidine, methadone, dextropropoxyphene, and diphenoxylate (Lomotil). The latter two are listed here because they can produce mild but definite opiate dependence syndromes. All of these medications have a combination of inhibitory and excitant effects on the central nervous system. Important pharmacologic properties that contribute to the development of opiate dependence include antianxiety effects, the development of tolerance, and the development of physical dependence.

Etiology

Pharmacologic Factors

Intravenous injection of heroin or morphine produces sensations commonly described by users as pleasurable. First, they experience a "rush" or "flush" of explosive intensity, often compared with sexual orgasm. This is followed by a more gradual feeling of warmth and relaxation pervading the body, with a sense of tranquility. The pleasurable aspects of these sensations are sufficient to offset the experience of nausea and vomiting accompanying the first several experiences with intravenous opiates.

After tolerance develops (and it develops rapidly to the analgesic and antianxiety effects of opiates)

the major factor responsible for drug dependence is physical dependence, ie, the drug taker's desire to avoid the discomforts of the abstinence syndrome.

Psychologic Factors

There is no single psychiatric illness which is strongly associated with the production of opiate dependence. It does appear that many urban heroin users have suffered childhood deprivation that makes them vulnerable to emotional stresses and losses. Anxiety or any kind of dysphoria may lead the drug user to seek relief by continuing drug taking. Immaturity and inability to tolerate frustration or to delay gratification are other psychologic traits found in many opiate-dependent persons.

Social Factors

Association with other users of heroin is an important determinant of urban patterns of opiate dependence. Membership in or contact with a group who use heroin generally provides the introduction to this pattern. Curiosity or thrill-seeking is the most common explanation for starting drug use offered in medical and psychiatric histories given by these people.

The small group of people who have medically related opiate dependence have generally suffered from a combination of chronic pain and anxiety and apprehension which are related to issues beyond the simple worries directly associated with their illnesses. The psychologic factors are thought to include low self-esteem, depression, and some immaturity. Such patients can often be helped by combined, coordinated medical and psychiatric care.

Recognition of the Patient

A patient may volunteer the fact of his drug dependence in giving medical history, or the physician may have to inquire diligently before finding this out. Some variables in the patient which may increase the physician's index of suspicion include presenting conditions such as serum hepatitis, subacute bacterial endocarditis, or acute respiratory depression. Also, the patient's social background, including who his friends and visitors are and how they behave, may contribute to making the diagnosis. On physical examination, the findings of needle punctures, scarring and darkening over veins, and possible skin abscesses are common in users of illicit narcotics.

The appearance of the opiate abstinence syndrome is a confirmatory phenomenon. This may occur naturally, in the patient who is away from his customary supply of drug, or the physician may elect to attempt to precipitate the abstinence syndrome by administering a narcotic antagonist. After obtaining the patient's consent, one can give 0.1 mg naloxone intravenously and observe for appearance of the acute abstinence syndrome.

Intoxication

Acute intoxication with a usual dose of an opiate causes the patient to have constricted pupils, lowered respiratory rate, and spasm of smooth muscle sphincters. The duration of these effects depends on the drug used, route of administration, and existence of tolerance. Psychic effects seem quite dependent upon the person's expectations and the setting of drug taking.

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The person in acute pain who receives morphine in a hospital experiences relief of pain, with possible mild euphoria. Conversely, the person who injects an unknown but very small amount of heroin into himself, believing it to be a potent solution, obtains what he expects, namely, the "rush" followed by relaxation, although after tolerance develops the occurrence of euphoria per se is minimal.

Abstinence

Severity and duration of the opiate abstinence syndrome vary according to the amount, frequency, and duration of drug intake, and according to the substance used. The syndrome following abrupt cessation of morphine or heroin use, after at least three weeks of daily use, is the prototypical opiate abstinence syndrome. About 16 hours after the last dose, the patient begins to have rhinorrhea, goose flesh, lacrimation, sweating, and yawning; these increase in severity over the next several hours. Sluggish pupillary response to light is an important objective finding. Next, restlessness, insomnia, and muscular twitching and cramping develop, and the patient experiences hot and cold flashes and abdominal cramping. By the end of 36 hours of abstinence, nausea, vomiting, and diarrhea generally have developed. The peak intensity of symptoms is at 48 to 72 hours after withdrawal, and within seven to ten days all objective signs of abstinence have declined; patients may still complain of malaise, restlessness, and weakness for several weeks.

The important feature of this abstinence syndrome is that, while causing genuine discomfort, it is not life-threatening. Only a severely debilitated patient suffering from some condition such as chronic cardiac or pulmonary disease might have medical difficulty during untreated withdrawal.

Management

Acute opiate withdrawal can be treated best with substitution of methadone given orally and slowly reduced. When the patient exhibits rhinorrhea, goose flesh, and slow pupillary responses to light, the physician can begin treatment by prescribing 10 mg of oral methadone, to be repeated when the patient next has the objective signs of beginning withdrawal. This therapy is, of course, best carried out in an inpatient hospital setting, so control can be maintained over the patient's access to other drugs.

The patient who has been taking an average amount of heroin in most American cities will be maintained without signs of withdrawal on 30 to 40 mg of methadone daily. This dose can be reduced over one to three weeks to zero. Although oral methadone treats the abstinence syndrome, it produces little or no euphoria, especially when given under medical supervision, since it is given orally, and since tolerance to euphoric effects has already developed. Accomplishing withdrawal with a reasonable minimum of discomfort may be the first step in the opiate-dependent person's gaining enough trust in the people treating him to continue in longer-term rehabilitation. Detoxification or withdrawal alone is not enough to cause most patients to stop using opiates.¹⁶ Follow-up care for six months to several years

is necessary, and many patients may only accept this if some administrative pressures are placed on them. For example, a detoxification program can decline to accept people for repeated courses of detoxification if they do not continue with rehabilitation programs after the acute detoxification.

A wide range of services is necessary to provide treatment programs for opiate-dependent persons. Each person may have a different background and a different current situation, so the elements of a treatment plan must be chosen to meet individual needs. Psychotherapy, family therapy, educational and vocational services, legal aid, ongoing medical care, and social services including possible provision of housing or income support are all components of a complete treatment program. The staff in a program needs to know enough about the behavior of drug users in general, and especially about those they are treating, to stay ahead of the client's attempts to avoid surveillance or abstinence. Urine checks to determine evidence of unauthorized drug use, and ongoing evaluation of the program to monitor the objective results with patients (employment, participation in family), are necessary to ensure the establishment of effective treatment programs.

The newer treatment approaches for opiate users are the methadone maintenance techniques, and drug-free therapeutic communities such as Synanon or Daytop Village. Methadone maintenance appears to be helpful for the person who has adopted heroin use as a life career, and who can benefit

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from additional vocational training and the rewards of placement in a steady job. Patients are given 40 to 120 mg methadone daily, which prevents them from getting any acute subjective pleasurable sensation if they should take an intravenous dose of heroin. Getting no "kick" from heroin, and being protected from withdrawal symptoms by methadone, they may discontinue seeking and using heroin. As part of a program providing counseling, training, and social services, methadone maintenance has been a help for many heroin users who had not been successfully treated in other programs.⁵

LAAM, L-alpha-acetyl-methadone, is longer-acting than methadone; it can be administered three times weekly, in contrast to the requirement of daily doses of methadone. Nonetheless, even if patients do not receive medication daily, their visits to the maintenance clinic provide psychologic support that can often be critical in successful recovery.¹¹

Communities of former heroin users, with strict enforcement of a complicated comprehensive set of social rules, provide a new total life career for the person who enters and stays. Members begin by a long and demanding application procedure, often having to appear for appointments several days in a row before being accepted. They then are assigned to menial tasks in the house, and gradually may work their way up to positions of some responsibility. Programs in public speaking, education, and peer-group therapy are the usual added components of treatment. Many people drop out early in treatment,

and reliable statistics are not published. It does appear that a few persons who stay on in the program find a new kind of involvement and do not return to drug use.

Studies to determine which kind of treatment program is more effective for different types of drug-dependent people have been instituted, but no definitive results are yet reported. A typology of drug users, and a matching typology of treatment approaches, would be a significant advance in our knowledge. To date, it is clear that any treatment program which leads to recovery for opiate-dependent patients involves several years of continuous outpatient care, with contact intensive enough to detect early relapse, and services comprehensive enough to provide new opportunities for those who want to change.

Sedative-Hypnotic Dependence

While most abused opiates are obtained illegally, and alcohol is generally purchased over-the-counter, many people dependent upon sedatives can obtain their supplies by prescription. Despite the small percentage of people taking sedatives who have become dependent upon them, it has been estimated that in absolute numbers, as many as 2,000,000 Americans annually are taking more medications of the barbiturate class than is medically indicated. For these reasons, and because the withdrawal syndrome can be quite severe, the physician needs to be alert to this condition.

Etiology

All barbiturates, all potent non-barbiturate hypnotics, with the possible exception of flurazepam,

and all minor tranquilizers (including meprobamate and the benzodiazepines) can, when a person ingests them in large quantities over a period of time, cause the development of drug dependence of the sedative-hypnotic class. These medications have acute effects similar to alcohol, and the chronic effects, including drug dependence, are not dissimilar. However, sedative drug dependence, are not dissimilar. However, sedative drug dependence is not associated with kinds of nervous system or hepatic damage seen in alcoholism.

Development of physical dependence is a function of the variables of drug dosage and duration of continued intake. Daily doses of 400 mg of pentobarbital do not result in a state of physical dependence that leads to withdrawal convulsions or delirium. Doses above 800 mg daily, over 90 days, are highly likely to be followed by convulsions or delirium on abrupt withdrawal.^{4,8} Even single hypnotic doses of glutethimide, methypyrilone, or pentobarbital do cause distinct changes which might be the earliest state of development of physical dependence.⁹

Social and psychologic factors are the other major variables determining who may develop sedative drug dependence. People who do not tolerate anxiety or discouragement easily, and who find relief in the effects of sedatives or anti-anxiety medications, may well begin to use these in larger doses than their physician intends. Such people may have psychiatric syndromes of several varieties, including neuroses with much perceived anxiety; character or personality

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