Science-Based Views of Drug Addiction and Its Treatment

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JAMA. 1999;282(14):1314-1316 (doi:10.1001/jama.282.14.1314)

http://jama.ama-assn.org/cgi/content/full/282/14/1314

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MORE THAN TWO THIRDS OF people with addiction see a primary care or urgent care physician every 6 months, and many others are regularly seen by other medical specialists.[1,2] These physicians are therefore in a prime position to help patients who may have drug abuse problems by recognizing and diagnosing the addiction, helping to direct patients to a program that can meet their treatment needs, and helping to monitor progress after specialty treatment and during recovery.[3-6] Many physicians, however, find the domain of drug abuse particularly daunting and often avoid the issue with their patients. This is understandable given the relatively short shrift drug abuse is given in formal medical education. There is a widespread misperception that drug abuse treatment is not effective, which may account for the reluctance of physicians to even broach the subject of drug abuse or treatment with their patients.

On the other hand, over the past 15 to 20 years, advances in science have revolutionized our fundamental understanding of the nature of drug abuse and addiction and what to do about it. In addition, there are now extensive data showing that addiction is eminently treatable if the treatment is well-delivered and tailored to the needs of the particular patient. There is an array of both behavioral and pharmacological treatments that can effectively reduce drug use, help manage drug cravings and prevent relapses, and restore people to productive functioning in society.[7-9]

Of course, not all drug abuse treatments are equally effective, and there is no single treatment appropriate for all patients. Fortunately, recent scientific advances have provided insights both into the nature of drug abuse and addiction and into the principles that characterize the most effective treatment approaches and programs.[10] These treatment principles should make the primary care or nonaddiction specialty care physician's tasks of screening and referral much easier.

Understanding Why People Use Drugs

Understanding the patient's motivation to use drugs is critical. Although individuals have many complex motives for drug use, at the broadest level, physicians will likely encounter 2 general categories of drug users. Each category of users needs to be approached and dealt with differently. One category is what might be called the "novelty" or "sensation seekers." These individuals, often adolescents, use drugs simply for the pleasant feelings or the euphoria that drugs can produce, or to feel accepted by their peers. Many of these individuals develop problems with their drug use because the drugs' psychoactive effects interfere with daily functions, such as school. Moreover, although individuals do differ in their vulnerability to becoming addicted, even occasional drug use can inadvertently lead to addiction.

The second category is often more challenging for the clinician. People in this group use drugs as a way to deal with life's problems or with dysphoric moods. Often these individuals are clinically depressed or have another mental disorder. In essence, instead of using drugs simply to feel good, they are using them in an attempt to counteract negative mood states; they are trying to "self-medicate" their moods.[11,12] Prolonged drug use can exacerbate rather than correct these kinds of problems and can potentially lead to other medical conditions.

Health care professionals need to approach each group differently. At a minimum, for the "self-medicators" attention must be devoted to the underlying mental health problems. Proper diagnosis and treatment for all comorbid disorders is crucial to successful recovery. The integration of concurrent treatment of both the mental and the addictive disorders appears to be the best approach.[13]

The Nature of Addiction

While addiction traditionally has been thought of as simply using a lot of drugs or as just physical dependence on a drug, advances in both science and clinical practice have revealed that what matters most in addiction is often an uncontrollable compulsion to seek and use drugs. It is this compulsion that causes most of the problems surrounding addiction and what requires the most complete and multidimensional treatment regimens. Moreover, for many people addiction becomes a chronic recurring disorder, wherein repeated treatment episodes are required before the individual achieves long-term abstinence.[9,14]

Although the onset of addiction begins with the voluntary act of taking drugs, the continued repetition of voluntary drug taking begins to change into involuntary drug taking, ultimately to the point that the behavior is driven by a compulsive craving for the drug. This compulsion results from a combination of factors, including in

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Edited by Thomas C. Jefferson, MD, Contributing Editor.

large part the dramatic changes in brain function produced by prolonged drug use. This is why addiction is considered a brain disease—one with embedded behavioral and social aspects.[8,15] Once addicted, it is almost impossible for most people to stop the spiraling cycle of addiction on their own without treatment.

It is important to note, however, that treatment does not have to be voluntary to be effective. Strong motivation, such as sanctions or enticements in the family, employment setting, or the criminal justice system can help facilitate not only entry and engagement in the treatment process but treatment outcomes as well. Of course it also is true that for any treatment to be successful, the addict must become an active and compliant participant in the treatment regimen.

Recognizing a drug abuse problem or addiction is often difficult. However, discussion of these issues should be included in physicians' interactions with their patients, and a variety of tools have been developed that can be useful in primary care and other nonaddiction specialty settings. One tool in particular that can be useful to physicians is the addiction severity index. The addiction severity index is a structured interview to assess problem severity in 7 commonly affected areas of alcohol and/or drug abusers' lives: medical condition, employment, drug use, alcohol use, illegal activity, family relationships, and psychiatric condition.[16-18]

What Is Drug Addiction Treatment?

The general approach to addiction treatment can be described as breaking a big task into manageable bits, each tailored to the needs of the individual patient. Because of addiction's complexity and pervasive consequences, treatments typically involve many components. Effective treatments must attend to the multiple needs of the individual, not just his/her drug use.[19]

There are a number of science-based treatment modalities or approaches that can be used as part of a comprehensive drug abuse treatment program. In addition to the modality, there are other core components, such as assessment, support groups, and drug abuse monitoring programs that are essential to the entire treatment approach. The TABLE lists the diverse treatment and service components that might be provided during the course of treatment.

There is no one-size-fits-all treatment program. Treatment is typically delivered in outpatient, inpatient, and residential settings, all of which have been shown to be effective in reducing drug use and are particularly appropriate for specific types of patients.[20] Drug addiction treatment can include behavioral therapy (such as counseling, cognitive therapy, or psychotherapy), medications, or a combination of these. Therapies, such as treatment focused on cognitive behavioral coping skills, offer people strategies for coping with their drug cravings, teach them ways to avoid drugs and prevent relapse, and help them deal with relapse if it occurs. The best programs provide a combination of therapies and other services, such as referral to other medical, psychological, and social services to meet the needs of the individual patient. Participation in self-help support programs during and following treatment often can be helpful in maintaining abstinence.

Treatment medications, such as methadone, levo-alpha acetylmethadol, and naltrexone are available through outpatient methadone treatment programs for individuals addicted to opiates. Methadone treatment has been evaluated more rigorously than any other drug abuse treatment modality and has been shown to be highly effective in treatment retainment of a large proportion of patients by reducing their intravenous drug use, human immunodeficiency virus (HIV) rates, and criminal activity, and by enhancing their social productivity.[21] The most effective opiate agonist maintenance programs provide methadone as well as other medical, behavioral, and social services.

Table. Components of Comprehensive Addiction Treatment*

Core elements
Intake processing and/or assessment
Treatment plan
Pharmacotherapy
Behavioral therapy and counseling
Substance use monitoring
Self-help and peer support groups
Clinical and case management
Continuing care
Associated services
Mental health services
Medical services
Educational services
AIDS/HIV services†
Legal services
Financial services
Housing and/or transportation services
Family services
Child care services
Vocational services

*Modified from Etheridge RM, Hubbard RL. Conceptualising and assessing treatment structure and process in community-based drug treatment programs. *Subst Use Misuse*. In press.
†AIDS indicates acquired immunodeficiency syndrome; HIV, human immunodeficiency virus.

The commonly held belief that methadone and levo-alpha acetylmethadol are simply substitutes for heroin is wrong. Although these medications are μ-opioid agonists, their pharmacological and pharmacodynamic properties are quite different from heroin. Instead of destabilizing the individual, as heroin does, methadone and levo-alpha acetylmethadol stabilize the patient and facilitate a return to productive functioning.[22] Moreover, methadone treatment has been shown to dramatically reduce death rates and HIV-risk behavior.[21]

Medications and behavioral therapies are also available for other addictions. For example, nicotine preparations (patches, gum, nasal spray) and bupropion are available for individuals addicted to nicotine. Naltrexone and acamprosate are available to help reduce the risk of relapse to heavy drinking. There are also a number of promising new antiaddiction medications and behavioral therapies that are being tested in clinical trials.

Because detoxification is often the only element covered in many health insurance programs, detoxification is often thought of as addiction treatment. However, it is not. Medical detoxification is, at best, a first step in be-

ginning treatment and by itself does little to change long-term drug use.[23] It safely manages the acute physical symptoms of withdrawal while the patient adjusts to a drug-free state.

The Best Treatment Programs Are Comprehensive and Multidimensional

The most effective programs either provide on-site, or are closely linked with, a wide variety of treatment elements and support services. Moreover, since recovery can often be a long and complex process, treatment providers must be able to continually assess and adjust the patient's treatment and service to ensure that it is appropriate to the individual's changing needs. In addition to behavioral and/or pharmacological therapies, the patient may need other medical services, family therapy, parenting instruction, vocational rehabilitation, and social and legal services.

Treatment programs should also provide repeated assessments for HIV and acquired immunodeficiency syndrome, hepatitis B and C, tuberculosis, and other infectious diseases, as well as noninfectious diseases like diabetes mellitus and hypertension, in addition to counseling and referral for relevant medical treatment. Counseling on the risks of disease transmission can be effective in helping patients modify or change behaviors that place themselves or others at risk of infection.[24,25]

Drug Addiction Treatment Is Effective

Overall, treatment of addiction is as successful as treatment of other chronic diseases, such as diabetes, hypertension, and asthma. Drug treatment reduces drug use by 40% to 60% and significantly decreases criminal activity during and after treatment.[20] Research shows that drug addiction treatment reduces the risk of HIV infection and that interventions to prevent HIV are much less costly than treating HIV-related illnesses. Injection drug users who do not enter treatment are up to 6 times more likely to become infected with HIV than injection drug users who enter and remain in treatment.[26] Treatment can improve the prospects for employment, with gains of up to 40% after a single treatment episode.[27] Although these effectiveness rates hold in general, individual treatment outcomes depend on the extent and nature of the patient's presenting problems, the appropriateness of the treatment components and related services used to address those problems, and the degree of active engagement of the patient in the treatment process.

Conclusion

Addiction is a treatable disease. The National Institute on Drug Abuse has published the first-ever science-based guide to drug treatment, *Principles of Drug Addiction Treatment*,[10] to provide a context by which both health professionals and the general public can begin to understand and evaluate addiction treatment approaches. The guide addresses some of the essential characteristics of addiction and its treatment and lays out the principles derived from 2 decades of scientific research that characterize effective treatment programs.

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