
Medical Disorders and Complications of Alcohol and Other Drugs, Pain and Addiction: An Introduction

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The health consequences of drugs are major problems throughout the world with billions of people using legal (tobacco and alcohol) and illegal drugs (amphetamines, cocaine, opiates, hallucinogens, and marijuana). Drug use is associated with burdensome social, economic, and health consequences, the latter involving almost every physiological/biochemical system. These may include psychiatric, cardiovascular, metabolic, and hepatic complications and infectious diseases. Although there is a myriad of problems related to drug use, it is the medical consequences that are the leading causes of death, and consequently, these are of great medical concern. It is evident that this section on medical consequences of drug abuse is an important component of a comprehensive textbook of addiction medicine that should describe, most if not all, these health effects and their clinical management. In general, the principles of assessment and management of these disorders are no different from people who do not abuse drugs or alcohol, but this section of the textbook describes particular patterns of morbidity and approaches to management that distinguish this population.

The typical patient with a substance use disorders has multiple problems rather than single pathology as described above, yet it is not generally feasible for multiple specialists to become involved. Consequently, the addiction medicine specialist needs a broad range of clinical skills to adequately manage patients with complex health problems including pain. Alcohol and other drugs particularly affect the

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neurological and gastrointestinal systems but may involve all other systems. The chief medical comorbidities include infectious diseases, sleep, and pain disorders. Patients may be infected with infections including human immunodeficiency virus (HIV) and hepatitis C virus (HCV), tuberculosis, and sexually transmitted infections individually or in combination. Nutrition is important and nutritional disorders may impact on recovery from other co-occurring illnesses. Patients often require complex treatment with multiple medications, and consequently, pharmacokinetic/pharmacodynamic drug-drug interactions are a particular challenge in this population. Physicians with a background in mental health will welcome a concise description of the chief medical disorders to be encountered in their patients. In many cases with pathology that responds to management as recommended in this section, further specialist referral can be minimized.

Infectious diseases form the focus of several chapters in this section. An estimated one third of the global population of seven billion is living with one or more bacterial or viral infections (United Nations AIDS (UNAIDS) 2008). There are an estimated 200 million people who abuse illegal drugs regularly (United Nations Office on Drugs and Crime: World Drug Report 2007) in the world, and this population is at increased risk of blood-borne viruses and other infections. Legal and illegal substance abuse alone costs the American society an estimated 534 billion dollars annually (Office of National Drug Policy 2004), while diabetes and cancer cost an estimated \$174 billion (American Diabetes Association 2003) and \$263 billion (American Cancer 2008), respectively. Infections that occur in people who use substances lead to enormous social, economic, and health costs to the society. These infections are associated with inferior outcomes in drug users compared to nondrug users for a range of reasons including poor general health, poor engagement with health care, lower rates of treatment uptake, and higher rates of treatment dropout. Alcohol and drug use are also associated with impaired immune function that may increase infection risk. Infectious diseases complicating drug use can affect all systems of the body and are described throughout this section, but the blood-borne viruses are particularly important public health problems. There have been striking advances in the treatment of blood-borne virus infections particularly HCV and HIV. New antivirals have transformed HCV treatment and are poised to rapidly develop further in the coming decade. The complications and management of viral hepatitis in drug-abusing populations, particularly HCV, have been addressed by Giorgio Barbarini. HIV treatment continues to improve in efficacy and tolerability. It is important to note that the problem of drug interactions that appeared earlier between HIV antiretrovirals and methadone seems to be less with the newly approved buprenorphine. Khalsa and his colleagues have reviewed the medical consequences of substance abuse and co-occurring infections and how to clinically manage these health effects.

The cardiovascular complications of alcohol and other drugs have been addressed by Mori Krantz et al. This group has provided an overview on the

broad range of cardiovascular issues including both the pathophysiological approach and practical approach for clinicians. Patients who require surgery present particular challenges. Spies and colleagues provide an overview of the perioperative management problems in people with substance use disorders.

Neurological complications include neuropsychiatric complications such as anxiety disorders, severe depression, and suicidal attempts. Alcohol in particular is a major cause of many of the common neurological disorders including seizures, confusional states, stroke, and peripheral neuropathies. Bough and colleagues describe these disorders and their management. Crome and colleagues focus on memory and cognitive function, which is often the most critical functional impairment in the addicted patient.

Gastrointestinal and liver disorders are commonly seen in the substance-using population particularly in those that misuse alcohol. Alcoholic liver disease is the leading cause of death in those with alcohol dependence and is a major focus of the chapter by Haber and colleagues. Hepatitis C is now the leading indication for liver transplantation and a major public health problem. New antiviral treatment offers great promise over the next decade to increase the cure rate and reduce the morbidity associated with current interferon-based treatment.

There are myriad endocrine changes associated with alcohol and drug use. These include direct action of drugs on endocrine tissues and secondary effects related to infectious diseases, nutrition, and adverse effects from prescribed medications. All classes of abused drugs are associated with endocrine effects particularly alcohol, psychostimulants, and opioids as described by Dobs and Hallinan in respective chapters. Sexual dysfunction is a particular issue and is another clinical problem that may be overlooked in clinical practice. Hallinan describes the common disorders of sexual function and present a clinical approach to their management.

The kidney may be affected by substance abuse in a range of direct and indirect ways. Hennessy provides an overview of the clinically important syndromes and outlines their management.

Disturbed sleep is a very common yet sometimes overlooked complication of substance abuse. It may contribute to relapse and drug seeking as patients often increase use of their primary drug or use other drugs to restore adequate sleep. Varenbut and colleagues provide a sleep medicine overview, with specific emphasis on sleep physiology and the psychiatric and addictive disorders causing sleep concerns. Clinical and laboratory assessment is described. A practical approach is offered for the treatment of sleep disorders with both pharmacotherapy and cognitive behavioral therapy approaches.

In summary, drug abuse and co-occurring infections of HIV and HCV are associated with a wide variety of serious health effects. Although treatment of drug addiction, its medical consequences, and the dual infections of HIV and HCV are complex, good clinical outcomes are achievable with integrated programs of health care.

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