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RECENT ADVANCES IN ANAESTHETIC MANGEMENT OF DRUG ABUSERS

Essay

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قسم التخدير و الرعاية المركزة

الاتجاهات الحديثة في المعالجة التخديرية لمتعاطي العقاقير

رسالة مقدمة من الطالب

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According to the World Health Organization (WHO), global trends reflect a general increase in the use of illegal addictive drugs and alcohol abuse and concerning increases among the youngest sectors of the population. There are about 200 million users of illegal drugs worldwide, which represent 3.4 percent of the world population.

These patients present to us as anaesthesiologists in a variety of circumstances: in obstetrics for labor and emergencies, in trauma for emergency surgeries or life-saving (resuscitative) situations and in everyday elective surgeries. Therefore it is important for anaesthesiologists to know about the most common illicit drugs being used, to know their side effects and clinical presentation if abused or intoxicated, and to know what anaesthetic options would be beneficial or detrimental.

Substance abuse is described as "self-administration of various drugs that deviate from medically or socially accepted use, which, if prolonged, can lead to the development of physical and psychological dependence".

There have been many theories concerning the etiology of chemical dependence including biochemical, genetic, psychiatric, and, more recently, exposure-related theories. None alone has been able to identify specific causes,

only to suggest what may increase the risk of developing addiction.

Depending on the psychopathological effects level of CNS, the abused substances are classified into:

a) Stimulants (psychoanaleptics): e.g. cocaine and amphetamines.

b) Depressants (Psycholeptics): e.g. alcohol and barbiturates.

c) Hallucinogenic (psychodysleptics):e.g. lysergic acid (LSD) and ectasy.

It is important to be aware that these illicit drugs are often used in combination with other drugs and alcohol. This may potentiate most of their side effects and intoxication would be more harmful.

The first step in the safe management of the chemical substance abuse patient is recognition that the problem exists. Such recognition may be relatively easy, very difficult, or essentially impossible.

Most often abuse of an illicit substance is first suspected or diagnosed during medical management of another condition such as hepatitis, human immunodeficiency syndrome (HIV), or pregnancy.

In addition to the usual physiological damage to vital organs (heart, lungs, kidneys, and immune system) new evidence of permanent damage in regions of the brain responsible for memory and pain mediation is emerging.

Addicts have an exaggerated organic and psychological co-morbidity and in cases of major operations or polytrauma they are classified as high-risk patients.

Additional perioperative problems such as; higher analgesic requirements, craving, physical and/or psychological withdrawal symptoms, hyperalgesia and tolerance should be expected. However, the clinical expression depends on the substance abused.

Anaesthesia and analgesia must be generously stress protective and analgesically effective. Equally important perioperative treatment principles are stabilization of physical dependence by substitution with methadone (for heroin addicts) or benzodiazepines/clonidine (for alcohol, sedatives and hypnotics addiction), avoidance of stress and craving, thorough intraoperative and postoperative stress relief by using regional techniques or systematically higher than normal dosages of anaesthetics and opioids, strict avoidance of inadequate dosage of analgesics, postoperative optimization of regional or systemic analgesia by non-opioids and coanalgesics and

consideration of the complex physical and psychological characteristics and comorbidities.

Regardless of the drug(s) ingested and clinical manifestations present, it is always difficult to predict the exact anaesthetic implications in chemically dependent patients.

Anaesthesiologists (as well as any physician) may suffer from addiction to any number of substances, though addiction to opioids remains the most common. How to manage an impaired colleague is an important issue and requires helping resources.

Anaesthesiologists are now becoming involved in many of the rapid detoxification procedures to combat/treat addiction. The procedure of rapid detoxification requires proper patient selection and intensive medical care unit (for administration of anaesthesia/deep sedation and monitoring), which should be preferably closely connected with the psychiatry or addiction unit to facilitate continuity of care. This would ensure attention to the procedure, the immediate post-procedure complications as well as later abstinence-oriented programs. At this point in time, it is probably best viewed as an experimental technique rather than as a mainstream procedure in medicine.

Contents:

Introduction

Substance abuse has crossed social, economic, and geographic borders; it remains as one of the major problems facing the society today. The prevalence of recreational drug abuse among young adults (including women) has increased markedly over the past two decades ***(Kuczkowski, 2002)*.**

These patients present to us as anaesthesiologists in a variety of circumstances: in obstetrics for labor and emergencies, in trauma for emergency surgeries or life-saving (resuscitative) situations and in everyday elective surgeries. Therefore it is important for anaesthesiologists to know about the most common illicit drugs being used, to know their side effects and clinical presentation if abused or intoxicated, and to know what anaesthetic options would be beneficial or detrimental ***(Hernandez et al., 2005)*.**

The fourth edition of the Diagnostic and statistical manual of Psychiatric disorders **(DSM-IV) (2000)** defined substance dependence as follows: A **syndrome** manifested by a behavioral pattern in which the use of a given psychoactive drug, or class of drugs, is given a much higher priority than other behaviors that once had higher value.

Anaesthesiologists are among the risk groups of addiction, especially to opioids, due to easy access to the drugs

and the stressful job situations. This could be prevented by multiple approaches including education, awareness raising and proper drug control ***(Bryson & Silverstein, 2008).***

Nowadays anaesthesiologists are involved in the ultra-rapid opioid detoxification under anaesthesia, a method designed for treatment of opioid dependent patients, while minimizing the side-effects of opioid withdrawal ***(Gevirtz, 2003).***

Terminology and definition

Despite intensive research and significant advances, drug addictions remain a substantial public health problem. Drug addictions cost U.S. society hundreds of billions of dollars annually and impact not only the addicted individuals, but also their spouses, children, employers, and others ***(Volkow et al., 2011).***

The term addiction, derived from a Latin word meaning ‘‘bound to’’ or ‘‘enslaved by,’’ was initially not linked to substance use ***(Maddux& Desmond, 2000)***. However, over the past several hundred years, addiction became associated with excessive alcohol and then drug use such by the 1980s it was largely synonymous with compulsive drug use ***(O’Brien et al., 2006)***.

The term “addiction” is used to describe a recurring compulsion by an individual to engage in some specific activity, despite harmful consequences to the individual's health, mental state or social life. Terminology and definitions have become complicated in this field, many continue to speak of addiction from a physiological standpoint (some call it physical dependence), addiction often have both physical and psychological components ***(Angres& Angres, 2008).***

The fourth edition of the Diagnostic and statistical manual of Psychiatric disorders **(DSM-IV) (2000)** defined substance dependence as follows: A **syndrome** manifested by a behavioral pattern in which the use of a given psychoactive drug, or class of drugs, is given a much higher priority than other behaviors that once had higher value. The dependence syndrome is not absolute, but is a quantitative phenomenon that exists in different degrees. The intensity of the syndrome is measured by the behaviors that are elicited in relation to using the drug and by the other behaviors that are secondary to drug use. No sharp cut-off point can be identified for distinguishing dependence from non-dependent but recurrent drug use. At the extreme, the dependence syndrome is associated with "compulsive drug-using behavior" (Table 1).

Table 1: Substance use disorder-related definitions (Jage & Bey, 2000).

Addiction	Commonly used term meaning the aberrant use of a specific psychoactive substance in a manner characterized by loss of control, compulsive use, preoccupation, and continued use despite harm; pejorative term, replaced in the DSM IV in a non pejorative way by the term 'substance use disorder' (SUE)) with psychological and physical dependence.

Dependence	(1) *Psychological dependence:* need for a specific psychoactive substance either for its positive effects or to avoid negative psychological or physical effects associated with its withdrawal. *(2) Physical dependence:* A physiological state of adaptation to a specific psychoactive substance characterized by the emergence of a withdrawal syndrome during abstinence, which may be relieved in total or in part by re-administration of the substance. (3) One category of psychoactive substance use disorder.
Chemical dependence	A generic term relating to psychological and/or physical dependence on one or more psychoactive substances (11 classes of psychoactive substances are abused: alcohol; sedatives, hypnotics and anxiolyties; cannabis; opioids; cocaine; amphetamine and other sympathomimetics; hallucinogens; inhalants; caffeine; nicotine; phencyclidine).
Substance use disorders	Term of DSM IV comprising two main groups: (1) Substance dependence disorder and substance abuse disorder. (2) Substance-induced disorders (e.g. intoxication, withdrawal, delirium, psychotic disorders).
Tolerance	A state in which an increased dosage of a psychoactive substance is needed to produce a desired effect; cross tolerance: induced by repeated

	administration of one psychoactive substance that is manifested toward another substance to which the individual has not been recently exposed.
Withdrawal syndrome	The onset of a predictable constellation of signs and symptoms following the abrupt discontinuation of or rapid decrease in dosage of a psychoactive substance.
Polydrug dependence	Concomitant use of two or more psychoactive substances in quantities and frequencies that cause individually significant physiological, psychological and/or sociological distress or impairment (polysubstance abuser).
Recovery	A process of overcoming both physical and psychological dependence on a psychoactive substance with a commitment to sobriety.
Abstinence	In recovery, non-use of any psychoactive substance.
Maintenance	Prevention of craving behaviour and withdrawal symptoms of opioids by permanently acting opioids (eg methadone, buprenorphine).
Substance abuse	Use of a psychoactive substances in a manner outside of sociocultural conventions ;according to this, any use of illicit and licit drugs in a manner not dictated by convention (eg. according to physician's order) is abuse.