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SPECIAL ARTICLE

Chemical dependence in anesthesiologists: *the actuality*

Dependência química em anesthesiologistas: *atualidade*

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Definition of chemical dependence

Brain disease characterized by neurobiological and behavioral disorders that result in compulsive use of drugs and intense desire to obtain them.

These disorders reflect neuro-adaptive changes in transduction and genetic coding after the chronic use of the drug (alcohol, opioids, etc.).

Causes of chemical dependence

The occurrence of chemical dependency, burnout and suicide are tragic late stage symptoms for an increasing numbers of physicians across the globe in every country evaluated. Though not alone in the medical community, anesthesiologists seem to be at increased risk for these problems compared to other physicians, especially chemical dependency. The cause for anesthesiologists' increased

risk does not have a single simple answer due to the combination of many factors playing important roles. However, the toll that chemical dependency takes professionally and economically on the anesthesiologist, as well as the emotional upheaval that occurs for the physicians and their families, mandates that our professional societies look seriously at all causes of this scourge and ways that we can effectively intervene to prevent and, when necessary, to treat those that are affected. The Professional Wellbeing Committee of the World Federation of Societies of Anesthesiologists is in the forefront of this effort and has a free e-book that is downloadable on its website in English, Portuguese, Spanish and Chinese languages.¹

An important predisposing and non-modifiable cause of substance abuse is the individual genetic make-up of the anesthesiologist. Genetic variation may account for the pre-selection of over 50% of anesthesiologists developing substance abuse and dependency. A single exposure to addictive substances by an anesthesiologist with a genetic predisposition can lead to dependency on the drug. However, it must be stressed that genetic predisposition alone is not the sole causative factor for developing addiction, nor is it certain that those with a genetic predisposition

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will become addicted. Many environmental factors also play a crucial role, and that limits our ability to make definitive statements about the relative importance of genes compared to the personal experiences in the physical and psychosocial environment. A prime example of this complexity is shown by an evaluation of psychological factors that contribute to the development of substance abuse and addiction. Some 50% of physicians dependent on drugs have personality disorders with the majority being depressed. This observation has led to the hypothesis that substance abuse is nothing more than a form of self-medication. The role that genetics, as opposed to environmental factors, play in the development of these personality disorders has yet to be defined.^{2,3}

Equally important to the genetics are professional and personal stress factors. There is a vicious cycle encountered in routine anesthesia practice that tends to tear down coping mechanisms and increase the chances that an anesthesiologist might turn to misuse of a substance in order to cope with the stresses. The cycle typically starts with emotional and physical fatigue. The fatigue is augmented by a disruption of the normal circadian rhythm, which seems to have become an integral part of modern anesthesia practice. Fatigue leads to medical errors, which in turn, through self-recrimination and/or a malpractice suit, leads to stress, emotional fatigue and burnout. Any one of these factors can lead to an anesthesiologist looking for a way to relieve stress. With the availability of drugs, one avenue that is unfortunately selected is drug abuse, which in turn leads to a spiral of addiction. The availability of drugs in routine anesthesia practice and the ease in diverting them for personal use facilitates this addiction cycle. Therefore, the combination of genetic and environmental factors conspires to increase the risk for anesthesiologists becoming chemically dependent.

Recognition and prevention

Many assume that healthcare providers see the effects of substance use disorders (SUD) on individuals as well as society. It is believed that such exposure serves to discourage the use of such drugs. Healthcare providers are in no way protected from such diseases. In fact healthcare providers have about the same incidence as the general population but unlike those outside of medicine, have the lives of members of society in their hands. Traditional efforts to contain these diseases in healthcare personnel have focused primarily on self-reporting and education. Control of substances and programs designed for surveillance of transactions has been enhanced or so we feel. Many programs are now resorting to drug screening prior to employment followed by random testing.

Medicine is considered a self-selected noble profession where individuals police not only their colleagues but themselves for incompetence or impairment. DesRoches et al. provided a statement to physicians that: "Physicians should report all instances of significantly impaired or incompetent colleagues to their professional society, hospital, clinic and/or relevant authority".⁴ Although more than half (64%) agreed, one-third did not for reasons like the impression that others will take care of the problem, no action will be

taken, fear of retribution, lack of knowledge about on how to report, and simply that it is not our responsibility. We cannot rely upon self-regulation.

Education has traditionally relied upon presentations to trainees early in their residency. Cautionary tales of careers and lives lost is believed to be a strong deterrent. Often these talks are "one-and-done" with little follow-up. Spouses that may be the first to see changes are rarely invited. Booth et al. reported that despite increases in education about SUD over the course of their study, the incidence of SUD did not decrease.⁵ More and more regulatory training is imposed on physicians every year. Education about SUD is likely relegated to the same dry importance as an annual update of the electronic health record (EHR).

Surveillance of drug transactions via automated dispensing machines has shown some promise. Epstein et al. performed a retrospective review of drug transactions from individuals that had been previously discovered to be diverting substances.⁶ Factors consistent with diversion included transactions after duty hours as well as when an individual obtains controlled substances from an automated dispensing system away from their usual site of work. High wastage use or wastage of substances did not correlate, nor did transactions on canceled cases. The positive aspects of surveillance are that one can follow trends without alerting the subject of concern. Surveillance though is labor intensive and may in fact result in false accusations if one individual is diverting under another's name. Automated dispensing though is often accompanied by the practice of "witnessed wasting" where a controlled substance is wasted in a location and two individuals attest that the substance has been disposed. Many feel that this practice may facilitate diversion since most narcotics as well as saline are clear liquids and indistinguishable.

Diversion for personal use is a constant risk in medicine. Controlled return of substance with subsequent concentration testing is practiced by many institutions to assure that a returned drug is not merely a dilute sample of a potent agent.⁷ This method may detect the clinician that attempts to maintain the appearance their clinical use of substances is within the same range as their colleagues. It is somewhat labor intensive and chain of custody may not be assured.

Urine drug screening is growing as a means to deter and detect those individuals that enter the practice of medicine with a SUD (pre-placement), prevent those that may be contemplating use (random), and determine whether those whose behavior or performance does not meet expectations are impaired by drug use.^{8,9} The practice is established and accepted in industries responsible for the safety of the general public such as aviation and commercial ground transportation. Protocols are established under the United States Department of Transportation (DOT). Costs, fear of false positive results, and challenging logistics have prevented many institutions from moving beyond pre-placement testing. Those that have comprehensive programs are forward thinking.

The last but most concerning prevention measure though is the institution of policies that serve to ostracize even established clinicians who develop one of the spectrums of conditions that make the family of diseases of substance use disorders. The practice of "one-strike and you are out" may in fact lead to individuals entering specialties other than

anesthesia or select institutions that have more lax practices where control is not strong. The major risk though is to care for providers that have contributed to our specialty yet develop a SUD during practice. These individual may be reluctant to seek care or support for their own condition. Such policies are contrary to the practice of medicine. In our zeal to protect our patients we must avoid measures that are contrary to our overall mission.

No single toll is or will ever be 100% effective in our efforts to detect or prevent SUD among our ranks. Our programs must be multi-armed and include strong recurrent education, vigorous substance control and frequent transaction surveillance at a minimum and programs are advised to institute pre-placement urine drug screening at least. Lastly, hospitals are encouraged to develop cultures that are sympathetic to the plight of all individuals in healthcare that suffer from SUD.

Treatment and re-entrance

Addiction has been recognized as a disease by the AMA since 1956, and since that time medical treatment protocols have become increasingly sophisticated. Accordingly, effective management of the addicted anesthesia provider depends upon timely recognition of impairment/diversion, a planned intervention, and referral to a facility with specific expertise in the treatment of impaired healthcare providers. Initial therapy consists of weeks to months of intensive inpatient treatment and must be followed by abstinence and demonstrated recovery. Only after this program occurs can there be any discussion of re-entry to the practice of anesthesiology.

Since self-reporting of drug diversion and abuse is rare, it will fall to the addicted provider's peers and/or family members to consider the possibility of impairment. Obvious signs may not be initially apparent. However, as the disease progresses and the addiction intensifies, behavioral changes will almost certainly be present. These may or may not be accompanied by irregularities in the controlled substance records. Once a high index of suspicion exists, an intervention should be considered with the goal of directing the impaired provider to a prearranged treatment facility. Plans should be in place prior to any intervention to ensure that there is space available and that the facility has experience with the care of addicted anesthesia providers.

The first phase of treatment begins with an assessment of the scope of the patients' drug use. In addition, a full psychiatric examination should occur to assess for the presence of any accompanying mental health diagnoses such as depression, anxiety, or personality disorder. Care should occur under the direction of a psychiatrist and should be holistic, aiming to provide a comprehensive approach to all aspects of the patient's health. Following these initial phases of treatment, intensive inpatient care will commence. Treatment amongst a peer group of impaired health care providers is an effective method of facilitating the breakdown of the sophisticated denial mechanisms frequently encountered in this population. The goals of this treatment are total abstinence from all mind or mood altering substances concurrent with the development of coping mechanisms that will allow the individual to function in society. This is a significant endeavor, and explains the lengthy stay in treatment

typical of recovering health care professionals. After discharge, long term follow-up is the norm, with weekly professional's group meetings, regular attendance at 12 step meetings or other support groups, and frequent monitoring via random urine drug or hair screening.

The concept of re-entry to anesthesiology is highly controversial as earlier studies suggest a high relapse rate accompanied by significant mortality. More recent work indicates that with appropriate treatment and follow-up, five years sobriety rates of 80% are attainable.⁸ This is the same rate as non-anesthesiologist physicians and suggests that the current model of treatment for substance abusing healthcare providers consisting of specialized long term care, intensive follow-up, and lengthy monitoring is highly effective.⁹ Consequently, individuals considering re-entry to the practice of anesthesiology will need to demonstrate establishment of a robust and healthy recovery, and documented sobriety for a minimum of 12 months. Any other psychiatric or medical diagnoses should be addressed as well. The decision to allow an individual to return to practice must be made by the treating physician working in concert with the local physician's health program (PHP) or equivalent.¹⁰ Depending on the jurisdiction, the appropriate licensing boards may also need to be aware. The prospective work place must be supportive and willing to deal with any restrictions on work hours and/or drug handling that may accompany the return to work contract. These contracts typically stipulate a period of at least five years of random urine drug screen monitoring and witnessed administration of oral or injectable naloxone. Recent studies have documented the efficacy of witnessed naltrexone therapy for recovering opiate abusers.¹¹ It is now common practice to insist on 100% compliance with injectable depot naltrexone for opiate abusing Anesthesiologists prior to their return to a high access environment.^{12,13}

With modern treatment and follow-up there is reason to believe that significant proportion of Anesthesia providers afflicted with substance use disorders may be able to reenter the practice of Anesthesiology. As the previous discussion highlights, appropriate candidates for reentry should have received adequate treatment, be enrolled in a Physician Health Program with an aftercare contract, and will be subjected to long term monitoring. If the individual is not prepared to abide by these conditions, redirection to another field should be considered.

Conflicts of interest

The authors declare no conflicts of interest.

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