SPECIAL ARTICLE

Chemical dependence in anesthesiologists: the actuality

Dependência química em anestesiologistas: atualidade

Stuart Brooker\textsuperscript{a,b}, Michael Fitzsimons\textsuperscript{c,d}, Roger Moore\textsuperscript{b,e}, Gastão Duval Neto\textsuperscript{b,f,*}

\textsuperscript{a} Emory University School of Medicine, Atlanta, USA
\textsuperscript{b} Professional Wellbeing Committee WFSA, USA
\textsuperscript{c} Harvard University, Department of Anesthesia, Boston, USA
\textsuperscript{d} Committee of Chemical Dependence Massachusetts General Hospital, Harvard University, Boston, USA
\textsuperscript{e} Penn Medicine University, Department of Anesthesia, Philadelphia, USA
\textsuperscript{f} Occupational Health Committee of Brazilian Society of Anesthesiology, USA

Available online 5 April 2017

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.\textsuperscript{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...
will become addicted. Many environmental factors also play
a crucial role, and that limits our ability to make defin-
itive statements about the relative importance of genes
compared to the personal experiences in the physical and
psychosocial environment. A prime example of this com-
plexity 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 encoun-
tered in routine anesthesia practice that tends to tear down
coping mechanisms and increase the chances that an anes-
thesiologist might turn to misuse of a substance in order to
cope with the stresses. The cycle typically starts with emo-
tional 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 prac-
tice. Fatigue leads to medical errors, which in turn, through
self-reckoning and/or a malpractice suit, leads to stress,
emotional fatigue and burnout. Any one of these factors

Recognition and prevention
Many assume that healthcare providers see the effects of
substance use disorders (SUD) on individuals as well as soci-
ety. 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 pro-
grams 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 them-

S. Brooker et al.

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.4 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 dis-
pensing machines has shown some promise. Epstein et al.
performed a retrospective review of drug transactions from
individuals that had been previously discovered to be divert-
ing substances.5 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 transac-
tions 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 indi-
viduals 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 indistinguish-
able.

Diversion for personal use is a constant risk in medicine.
Controlled return of substance with subsequent concentra-
tion testing is practiced by many institutions to assure that
a returned drug is not merely a dilute sample of a potent
agent.6 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.

Urinary 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 expecta-
tions are impaired by drug use.7 The practice is established
and accepted in industries responsible for the safety of the
general public such as aviation and commercial ground transpor-
tation. 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 pro-
grams 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

228

Brooker

brooker@anesthesia.org

addresses those that will take care of the problem, no action will be
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.6,9

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 anesthesiaology.

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 anesthesiaology 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.9 This is the same rate as non-anesthesiaologist 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. Consequently, individuals considering re-entry to the practice of anesthesiaology 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 Anesthesiaology. 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.

References