The Integration of Medical Toxicology and Addiction Medicine: a New Era in Patient Care

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Abstract Medical toxicologists are frequently called upon to treat patients who are addicted to alcohol, tobacco, or other substances across many care settings. Medical toxicologists provide service to their patients through the identification, treatment, and prevention of addiction and its co-morbidities, and practice opportunities are quite varied. Training in addiction medicine can be obtained during or after medical toxicology fellowship through resources offered by the American Society of Addiction Medicine. Additionally, the American Board of Addiction Medicine offers certification in the specialty of addiction medicine to candidates across a wide range of medical specialties.

Keywords Addiction · Toxicology · Alcohol dependence · Drug dependence

Introduction

Whether in the emergency department, on a consult service, or through a poison center, toxicologists treat patients who are addicted to alcohol, tobacco, or other substances. The identification, prevention, and treatment of addiction and its co-morbidities falls within our skill set as toxicologists. Incorporation of addiction medicine into a toxicology practice broadens the resources for the management of poisoned patients and offers further practice opportunities. Healthcare

reform has placed special attention on improving the quality of care for patients with substance use disorders—the Affordable Care Act (ACA) has identified substance use disorder assessment and treatment as one of the ten essential health benefits and requires parity of reimbursement for services. Proposals to healthcare administration for development of consult services that blend addiction medicine and toxicology are likely to be received favorably as they address a larger and clinically complex patient population, with potential for return on investment. Training in addiction medicine can be obtained during or after medical toxicology fellowship and the American Board of Addiction Medicine offers certification in the specialty of addiction medicine across a wide range of medical specialties.

Addiction Medicine for Medical Toxicologists

Addiction medicine is a specialized field that focuses on the treatment of patients with substance use disorders, with cross-over into other areas of medicine such as psychiatry, primary care/internal medicine, toxicology, and emergency medicine. Treatment of addiction requires an understanding of the pharmacological and toxicological properties of abused substances, as well as the medications used for treatment. The toxicologist already functions as a resource for management of overdose with substances of abuse, withdrawal, and the pharmacology of therapeutic medications. In many settings, it is a simple proposition to expand existing toxicology services into addiction medicine, with examples including pharmacotherapy for alcohol use disorders, management of methadone or buprenorphine therapies in hospitalized patients, and screening for alcohol and substance use disorders. Practice opportunities within addiction medicine are quite varied and include inpatient and outpatient consultation, medical direction for treatment

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centers (including detoxification units and opiate agonist treatment programs), research, administrative, and policy work.

Often, the emergency department is the only medical setting encountered by patients with substance use disorders; many do not have additional medical problems that require regular care through a primary care physician or psychiatrist. Toxicologists are in a unique position to offer screening for drug abuse or dependence to these patients, to counsel them on the physical and mental health effects of their drug use, and to facilitate connection to resources for treatment. Studies in various healthcare settings on brief screening and counseling demonstrate cost-effectiveness and observed decreases in drug and alcohol use [1].

Many hospitals lack addiction medicine specialists to provide consultation services. In the author's own consultation practice, the majority of inpatient consultation requests to our addiction medicine service include the use of toxicology training: identifying the etiology of drug-induced altered mental status, treatment of withdrawal syndromes, interpretation of urine drug testing, initiation of pharmacotherapies for alcohol use disorder, and management of adverse drug effects, such as QTc prolongation in the setting of methadone therapy. Other colleagues who practice both addiction medicine and toxicology staff outpatient clinics for medication-assisted treatment of opioid and alcohol use disorder, providing medical direction or working under contract for federally funded or private treatment programs.

Toxicologists can additionally provide expert presence on pharmacy and therapeutics or standards of practice committees to guide inpatient use of pharmacological therapies for substance use disorder or related conditions. Intramuscular naltrexone, for example, is a high-cost medication; however, it is potentially instrumental in improving quality and decreasing costs of hospital-based care [2]. The engagement of medically ill hospitalized patients with substance use disorders or misuse through specialty consultation-liaison services leads to improvements in patient care, decreased frequency of acute care use, and increases in primary care visits [3, 4]. Overall, treatment for substance use disorders has been found to be cost-effective for both healthcare systems and the public. Studies have found that for every \$100,000 spent on treatment, \$487,000 in healthcare costs and \$700,000 in criminal costs were avoided [5].

Performance measures are increasingly being used to document quality of care; the Joint Commission, in conjunction with the Substance Abuse and Mental Health Services Administration and the Department of Health and Human Services, has developed standardized performance measures that address tobacco and alcohol screening and interventions offered to patients. Healthcare payors are beginning to provide reimbursement contingent on adherence to these practice standards. A growing body of evidence supports the cost-effectiveness of addiction medicine services. Combined with

the emphasis on screening and treatment for substance use disorders from federal policy makers, this financial incentive creates a strong appeal for the healthcare systems to invest in the creation or maintenance of addiction medicine specialty consultative services. A comprehensive business proposal combining both addiction medicine and toxicology addresses the gaps of service that healthcare administrators are increasingly looking to fill.

The curriculum taught during medical toxicology fellowship could easily be expanded to incorporate educational and practical experience in addiction medicine. The American Society of Addiction Medicine provides comprehensive information and training materials in both live and e-learning formats. Online learning content includes modules on the waiver for office-based buprenorphine treatment of opioid dependence, and training on screening, brief intervention, and referral to treatment (SBIRT) techniques. The society additionally presents an annual board review course that teaches the basic principles of addiction medicine; topics include neurobiology of addiction, pharmacology of substances of abuse, withdrawal, as well as assessments and treatments. Additionally, completion of toxicology fellowship training helps to fulfill eligibility criteria to apply to sit for the addiction medicine board certification exam administered by the American Board of Addiction Medicine.

Conclusion

Addiction medicine is a small, but quickly growing, specialty with many similarities to medical toxicology. Substance use is a top public health concern, and this is the opportune time for toxicologists to demonstrate involvement in this critical issue. Toxicologists would be well served to incorporate addiction medicine into their practice, not only for the growth of their own careers but also for the growth of the field of medical toxicology.

Compliance with Ethical Standards

Sources of Funding None

Conflicts of Interest The author declares that there are no competing interests.

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