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BOOK REVIEW

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Review of: *Medical Toxicology of Drug Abuse: Synthetic Chemicals and Psychoactive Plants*

REFERENCE: Barceloux DG. Medical toxicology of drug abuse: synthetic chemicals and psychoactive plants. Hoboken, NJ: Wiley, 2012, 1041 pp.

Medical Toxicology of Drug Abuse: Synthetic Chemicals and Psychoactive Plants is part of a four-part series toxicology texts, with the other three books covering the topics of natural substances, occupational and environmental exposures, and pharmaceutical overdoses. The *Drug Abuse* book consists of 66 chapters covering over 992 pages of text, over 7000 cited references, and a 48-page index. Part 1 consists of synthetic and semisynthetic chemicals including the amphetamines, club drugs, appetite suppressants, ergogenic agents, ethanol, lysergic acid diethylamide and other hypnotic drugs, opioids, phencyclidine, and volatile substances of abuse. Part 2 consists of psychoactive plants. There are 28 color photographs that further enhance the quality of this text.

Each chapter is broken down into sections that include history, botanical description, identifying characteristics, exposure, dose effects, toxicokinetics, histopathology and pathophysiology, clinical response, diagnostic testing, treatment, and cited literature references. I found the sections on behavioral abnormalities and mental disorders particularly useful. This impressive book has wide appeal. Scientists who conduct researches into these chemicals will find important background information on the substances themselves. Pharmacologists will find important information on dosing, metabolism and excretion, and other pharmacokinetic data. Analysts will find published reports on measurement of toxins in biological fluids. Clinical toxicologists will find sections on clinical response and treatment regimens useful in their medical practices. Even historians will be able to trace how these chemicals came to being with regards to their purification from plants or manufacturing by the pharmaceutical industry along with their original pharmacological intent. Each of these disciplines will want to have the entire four-book series in their reference libraries.

The authors did miss an opportunity to include pharmacogenomics and toxicogenomic data into the text under each substance, where such data are available. "Personalized medicine" is an emerging area of clinical medicine and will likely become an important part of clinical toxicology as well. Future assessment of symptomatic patients will involve an analysis of genetic variances that may explain why some individuals have adverse events at a specific dose while others do not. Individuals who are "poor hepatic metabolizers" because of variances in cytochrome P450 enzyme system are at increasing risk of overdoses. In contrast, for prodrugs that require metabolism to active metabolites, individuals who are "ultra-rapid metabolizers," that is, they have gene duplications within their DNA, are at risk of toxic side events. Polymorphism in genes that encode transport proteins will also affect the disposition of toxic substances, although specific gene targets are not well described. Pharmacogenomic testing is being used in clinical practice today, although on a somewhat limited scale. The absence of pharmacogenomics information for a particular substance may be a stimulus for future research, especially if there appears to be variances with regard to toxicity.

Despite this potential omission, Dr. Barceloux must be commended for this tremendous effort. It is rare to have an authoritative encyclopedia of information be predominately written by one person, clearly a labor of love. Without question, this book is a "must have" reference for anyone involved with drugs of abuse.

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