

## BOOK REVIEW

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### Review of: *Handbook of Forensic Toxicology for Medical Examiners*

**REFERENCE: Molina DK. Handbook of forensic toxicology for medical examiners. Boca Raton, FL: CRC Press, 2010, 370 pp.**

Dr. Molina's *Handbook of Forensic Toxicology for Medical Examiners* is part of a CRC Press Series of Books entitled *Practical Aspects of Criminal and Forensic Investigation*. Thus far, 30 separate books have been published in this series that was created by Vernon J. Geberth, a retired New York City Police Lieutenant Commander. Dr. Molina's quick-reference toxicology book is a spiral-bound edition divided into four separate sections. The first section of the book is devoted to the collection and selection of toxicological specimens. Educational information regarding types of specimens, utility of certain biological specimens, technical aspects of specimen collection and labeling, and storage of specimens are addressed in this section. Topics such as preferential sites for postmortem blood collection, attributes of postmortem vitreous samples, and overall utility of other postmortem tissue samples are discussed. The specimen collection section addresses recommendations for obtaining the proper amount of postmortem biological specimens, including the types of tubes to be utilized for the storage of certain specimens.

The second part of the book consists of a brief overview of toxicology methodology. Dr. Molina subdivides the screening tests section into three main areas, namely immunoassay, spectrophotometry, and chromatography. Each screening method is further broken down into the use of the test, the basic principle of the test, the different types of the screening test, and the advantages and disadvantages of the screening method. Following the screening test section, Dr. Molina addresses the basic issues of the confirmatory tests, general testing panels offered by most forensic toxicology laboratories, and a brief discussion of additional special testing.

The third part of the handbook is the largest portion of the book and includes an alphabetical listing of drugs (a total of 297 therapeutic/drugs of abuse). Heavy metals and recreational inhalants are also addressed. Generally, each drug discussion is assigned to one page of the book. The brand name of the drug, the drug classification (analgesic, barbiturate, beta-blocker, etc.), the half-life, the volume of distribution, and the usual dosage of the therapeutic drug are listed. Also included is a table that lists the postmortem source of origin (blood, vitreous, liver, muscle, etc.) and the corresponding therapeutic/nontoxic concentrations, toxic concentrations, and lethal concentrations of the specific drug. Additional uncommon sources

of origin such as adipose and lung tissue are included when interpreting specific drug concentrations. There is a Comments section on each drug that lists short, important bullet points regarding pertinent pathophysiologic, pharmacologic, and clinical information. A list of reference material entitled Selected Sources is present at the end of each drug discussion.

The specific source of blood (central vs. peripheral) is not addressed in the drug tables, but it is assumed that the published source is of a peripheral origin. The published toxic and lethal concentrations of the drugs are based on single drug intoxications. Cases which represent polydrug intoxications are noted. Careful interpretation of postmortem drug concentrations, in which the volume of distribution is  $>3$  L/kg is suggested. Dr. Molina briefly discusses the issue of decomposition, indicating the possible need to perform postmortem toxicological analyses on samples other than blood, because it may not be available at the time of autopsy. Common drug interactions are not specifically addressed in this book.

Five appendices are present at the end of the handbook. Appendix A lists common acetylcholinesterase inhibitors including therapeutic drugs, nerve agents, and insecticides. pesticides. Appendix B lists the cardiac, antihistamine, cancer anticonvulsant, and psychiatric drugs that prolong the QT interval. Appendix C provides an overview of the pharmacogenetics of the cytochrome enzyme system. There is a detailed table of specific CYP enzymes (CYP 1A2 and CYP 2C9), the corresponding drugs metabolized by the noted enzymes, and the drugs that inhibit the enzymes. Appendix D is a quick-reference guide to the normal laboratory values for a cell count, serum electrolytes, renal and liver chemistries, blood glucose concentration, cardiac enzymes, arterial blood gases, and specific digestive enzymes. Also included in this section is a useful table of the normal laboratory values for postmortem vitreous electrolytes and assistance in their interpretation. Appendix E consists of a conversion chart for metric units, volume, weight, length, temperature, and concentration.

Overall, the book is an excellent, quick-reference guide for practicing forensic pathologists. The contents of the book are not comprehensive in nature and that was the intention of Dr. Molina. Physicians in my office have utilized this book on a number of occasions since its arrival and have found it very useful and easy to read. This handbook would be an asset to any forensic pathologist's library.

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