

BOOK REVIEW

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Review of: *Experimental and Clinical Neurotoxicology*

REFERENCE: Spencer PS, Schaumburg HH. *Experimental and clinical neurotoxicology*. Second ed., Oxford University Press, NY, NY, 2000, 1310 pp.

For practicing postmortem forensic toxicologists there are a small number of undisputed first line texts, such as Baselt's *Disposition of Toxic Drugs and Chemicals in Man*, relied on daily for interpretive assistance. There are then the second line texts such as *Ellenhorn and Barceleoux*, and *Goodman and Gilman*, relied on for more specific pharmacological information, and clinical presentation, and in cases where there is no prior published data to assist in interpretation. Spencer and Schaumburg's text would fit well on the shelf beside these other volumes, as a resource for some of the specific neurotoxicological mechanisms that can be invoked to rationalize or explain the evident consequences of overdose with therapeutic or abuse drugs, or exposure to environmental, bacterial, animal, and fungal toxins.

The text is divided into two sections: the first contains three chapters that discuss basic neuroanatomy, and aspects of human and veterinary neurotoxicology. These provide a good contemporary review of the state of knowledge in this field. The second section, comprising the remaining 1200 pages, consists of a series of 365 monographs on various toxic drugs, venoms, and chemicals. The range of agents considered is impressive, including all major therapeutics and recreational drugs, through water, solvents, metals, to rattlesnake, and scorpion venom, and tick saliva, to name but a few of the more esoteric compounds. It also considers microbiological toxins such as diphtheria toxin and domoic acid. Chemical warfare agents are well covered.

The monographs describe the origin of the toxin, any therapeutic, industrial, or household applications, the mechanism associated with its toxicity, and other properties of the compound as determined from animal studies. It places its major emphasis on developing an understanding of the molecular mechanism of toxicity in each case. Each entry carries a neurotoxicity rating based on the

strength of the association between the entity and its reported action, or neurological condition.

This is not a forensic text. None of the 85 contributors are forensic toxicologists, and there are practically no citations from the forensic literature, even for the major abuse drugs. The case studies are all clinical and generally report nonfatal poisonings. The monographs contain no references to blood or serum concentrations. There are few specific references to psychomotor performance effects, which might assist in an assessment of potential for impairment. The text cites heavily from the experimental literature such as *J Pharmacol Exp Ther*, and *J Neurotoxicol*, which gives a different perspective on some toxicity issues from that routinely encountered in the forensic literature. Its primary audience will likely be research pharmacologists and neuropharmacologists.

What this text does offer the practicing forensic toxicologist or pathologist is a link to the fundamental experimental literature that has established mode of action and molecular mechanisms for many of the drugs and poisons encountered in everyday postmortem toxicology, as well as being an excellent jumping-off point for some of the more unusual compounds which surface from time to time. I have used this text, for example, to review the chemistry and toxicology of capsaicin prior to testimony involving the pepper spraying of a cocaine user; to obtain some basic information in an alleged ricin poisoning; and as a starting point for a case involving pyrethroids.

Each of the compounds reviewed is listed in two appendices by name, along with the major neurological conditions with which they are associated, or by symptom or syndrome, such as acute encephalopathy, cranial neuropathy, and ototoxicity, etc, which could be a useful diagnostic aid. The indexing is thorough and helpful.

This volume provides a useful bridge between empirical clinical and experimental research, and forensic toxicology, and deserves a place in the library of any toxicologist interested in a broader understanding of mechanisms of toxicity in general, and neurotoxicology in particular. While not a text I would ordinarily have sought out, having acquired it I would not want to be without it.

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