Book Reviews

Chronopharmacology. Cellular and Biochemical Interactions. Edited by Björn Lemmer. Marcel Dekker, New York and Basel, 1989, ixx + 720 pp.

It is now well-established through experimental research that pharmacokinetics and drug effects can be influenced by the time of day. However, this variable is not yet considered much in clinical practice, probably because of the lack of well-controlled clinical studies addressing specifically time-dependent drug efficacy and safety.

It may also be true that the general awareness of this potentially relevant topic is relatively low among the medical and pharmaceutical community, because the experimental data are scattered throughout the pharmacological and chronobiological literature. Therefore this review of substantial size is likely to be very useful, because it contains a wealth of information and most of the experts in the field world wide have contributed to it. There are 8 sections and a total of 31 chapters, in which the most important drug classes are treated comprehensively, generally combining animal data and (if available) data on man. Of particular relevance to the pharmaceutical scientist interested in drug delivery are the sections on antiasthmatic drugs, antiinflammatory drugs, antianginal drugs, and anticancer drugs, because the severity of the diseases to be treated with these drugs exhibits clear differences along the 24-hr clock cycle. This rhythm should imply either different dosing at different times of day or—more advanced—the need for time-programmed drug delivery. In this respect the theophylline preparations available on the market are discussed against the background of the highest incidence of nocturnal asthma attacks during early morning hours.

This book should contribute substantially to a better understanding of the influence of biological rhythms on pharmacokinetics and pharmacodynamics of the pharmaceutical scientist.

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Ocular Toxicology. Edited by Sidney Lerman and Ramesh C. Tripathi. Marcel Dekker, New York and Basel, 1990, ISBN 0-8247-8309-3, 410 pp., $119.50.

This book is not a general reference text, as the title implies, but rather a compilation of the proceedings of the First Congress of the International Society of Ocular Toxicology held on June 7, 1988. These works were published in 1989 as a special issue (Volume 6) of *Lens and Eye Toxicity Research*, a journal not indexed in Medline; thus many of the articles contained in the book would not be available on a literature search.

The editors suggest that this book serves a twofold purpose. First, it reviews the development of viable *in vitro* models for ocular toxicology that, in the past, were examined by animal experimentation. Second, it increases the understanding of ocular toxicology by emphasizing the importance of correlating biophysical and biochemical parameters with morphological changes. The book is divided into seven sections, arranged mainly corresponding to the ocular anatomy.

The first section contains an article on test models used to determine potential ocular drug-induced side effects. Various methods of spectroscopy (ultraviolet, fluorescence, phosphorescence, EPR, Raman and nuclear magnetic resonance imaging) are referenced for study of ocular tissues, specifically the lens. Liposomal drug delivery in relation to ocular lens concentrations is reviewed, including the use of miniosmotic pumps.

Section Two, The Cornea, contains papers that deal with corneal toxicity from preservatives, antineoplastics, antimicrobials, Azone, and chlorpromazine, as well as the methods used to evaluate their toxicity. Other topics include the effects of oxygen free radicals on the corneal endothelium and the healing of corneal epithelium wounds in low-frequency electromagnetic fields.

Among the topics discussed in Section Three, The Anterior Chamber, are the effects of endotoxin-induced ocular inflammation and its response to antiinflammatory agents, epinephrine-induced trabecular cell toxicity, morphologic changes from fluorouracil on cultured conjunctival cells, and agents to control hydrogen peroxide levels in the aqueous humor.

The fourth section, The Lens, includes an article on a new lens microsectioning device. Other papers describe a chromium-51 release assay to determine lens oxidative cellular damage, how naphthalene derivatives may contribute to cataract formation, and a comparison of two different systems of computer-based imaging on the rat lens to complement slit-lamp grading of cataracts.

Section Five, The Retina, discusses various models available for the study of toxicologic effects on the retina. These include melanin-loaded cells for the study of drug binding, a perfused bovine eye model, vitamin supplementation to prevent retinopathy (with a continuing addendum at the end of the book), the use of Humphrey perimetry in detecting chloroquine retinopathy, and an electron microscopic-derived coding system to differentiate the spontaneous development of lesions.

Phototoxicity is reviewed in Section Six, including the phototoxic effects from 8-methoxypsoralens, a method to monitor lens fluorescence, and photophysical studies of photosensitizers of the lens.

The final section describes side effects of drugs and other physical agents. The topics include long-term beta-blocker toxicity, a 1-year follow-up on simvastatin and ocular side effects, the influence of melanin on the intraocular dynamics of quinolone antibacterials, ocular levels of acyclovir, and microwave radiation effects on the eye.

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