Book Review


The use of marijuana for therapeutic purposes (so-called medical marijuana) is the subject of intense scientific, medical, and political controversy. The debate often generates more heat than light. In an attempt “to review the pharmaceutical and molecular basis of the therapeutic properties of marijuana and THC, and to evaluate their clinical applications,” New York University sponsored an international conference on Marijuana and Medicine held March 20–21, 1998. This book is the proceedings of that conference, with contributions from over 100 of the leading preclinical and clinical investigators in the field of marijuana research. The coverage of topics is broad, but of uneven scope, depth, and quality. There is a balanced, comprehensive, up-to-date review of the chemistry, molecular mechanisms, and pharmacokinetics of marijuana and its cannabinoid constituents and of the effects of marijuana on some major organ systems of the body. The book is somewhat less successful in reviewing the clinical evidence for therapeutic or adverse effects of marijuana, and least successful in reviewing the public policy (including legal and regulatory) aspects of medical marijuana. Thus, the book is more useful as a review of the basic and human pharmacology of the cannabinoids than it is as a review of the clinical uses and risks of marijuana or the pros and cons of medical marijuana.

This large volume (79 chapters divided into 12 sections) is more suited to intermittent use as a reference than to be read straight through. Almost all chapters are brief (<10 pages), with many providing a readable introduction to or review of their topic, and numerous up-to-date literature references (through 1996 or 1997). Many chapters are introduced by a one-paragraph abstract, but these are sometimes too vague to be useful. A detailed, 15-page index makes it easy to access specific information. In addition to the 49 original chapters based on the 1998 conference, 30 chapters are reprints of prior articles, many going back to the 1970s and 1980s. Many are of little value because of their age; a few do not even deal with marijuana.

Readers interested in learning about the exciting recent advances in the basic pharmacology of marijuana and cannabinoids will find brief, but thorough reviews of cannabinoid receptors and their endogenous ligands, cannabinoids and brain reward systems, cannabinoid mechanisms of analgesia, cannabinoid structure–activity relationships (albeit a 1992 reprint), and brain imaging studies with cannabinoids. Readers interested in the clinical pharmacology of cannabinoids will find excellent chapters on the pharmacokinetics of marijuana and THC (smoked, oral,
and suppository), their interaction with other drugs, and their acute physiological effects, including on the cardiovascular and respiratory systems. Other physiological systems are not covered as well. There are only 2 chapters on marijuana and the immune system (one a 1976 reprint). Nine of the 12 chapters on reproductive function are reprints (the most recent from 1991); there is no up-to-date coverage of teratogenicity, male hormonal effects, or prenatal or neonatal effects. The chapter on marijuana smoking as a possible carcinogen has only one page of text, mentions only *in vitro* studies, and ignores the published epidemiologic studies that address this issue.

Coverage of potential medical uses of marijuana is somewhat uneven. There are excellent brief reviews of the use of marijuana and THC in the treatment of pain (including the history of pharmaceutical industry research in this area), glaucoma, chemotherapy-induced nausea and vomiting, spasticity, seizures, and multiple sclerosis. Surprisingly, given its prominence in the current debate, there are only three chapters dealing with marijuana and AIDS, one a 1997 reprint of a clinical trial of dronabinol in wasting syndrome and one a review of malnutrition and AIDS with little mention of marijuana.

Most disappointing for psychiatrists and others interested in behavior and mental health is the poor coverage of this topic. Only marijuana and schizophrenia receives a good review. The discussion of psychiatric syndromes associated with marijuana use is sketchy and incomplete, confined to a four-page chapter with only 14 references (only three from the 1990s). The chapters on marijuana intoxication, memory, and aggression are all reprints dating from 1976 or 1984. Important aspects of the topic are left undescribed, such as marijuana withdrawal and marijuana and driving.

The least balanced and comprehensive part of the book is its coverage of the legal, regulatory, and public policy aspects of medical marijuana. The first section, labeled “A Historical Review” of marijuana and medicine, consists of reprints of past symposia summaries and other articles from 1978 to 1997. All but one of the reprints express negative views about medical marijuana. The lone exception is a 1997 *New England Journal of Medicine* editorial by Dr. Jerome Kassirer. The section on “Marijuana, Medicine, and Public Policy” also reflects this imbalance. The chapter on “Drug abuse and the law: Prosecution or persecution?,” written by a U.S. attorney, assumes that drug control laws are written and enforced solely based on scientific and medical facts. There is no specific consideration of marijuana and no discussion of the recent state laws legalizing medical marijuana. The chapters on federal controlled-substance regulations and FDA regulations, written by a DEA and FDA official, respectively, also have no specific mention of marijuana. Other major gaps in coverage include the epidemiology of marijuana use (and how this might be influenced by increased medical use) and what can be learned from marijuana regulation in other countries.

The last section, “General Conclusions,” consists of three chapters, all authored or coauthored by Dr. Gabriel G. Nahas of NYU, the chief organizer of the conference and editor of this book. Dr. Nahas is a well-known opponent of medical marijuana. His views are reflected in these chapters, as well as in two of his reprints in the historical review section. He argues forcefully about the risks of smoked