

Book Review

Chemically Induced Birth Defects

Second edition, revised and expanded

James L. Schardein

Published 1993 Marcel Dekker, Inc., New York

920 pages

ISBN 0 8247 8775 7 \$250.00

The practising obstetrician is from time to time faced with an anxious pregnant woman who has consumed a medication and is then worried that it may have damaged the foetus. Sometimes this will have been prescribed by a doctor unaware that she was pregnant; this adds the spectre of litigation. In most regions in the UK it is possible to ring a regional centre for advice; these are commonly attached to the 'poisons bureau' which gives information regarding overdoses. However, it is useful to have a volume at hand that can give one an immediate overview. Schardein has produced an excellent text for this purpose. Although not a doctor, he has been involved in toxicology and teratology research for over thirty years. Indeed, it is unlikely that a practising physician could find the time to put together such an impressive single author collection of data and description.

The first 59 pages is an excellent introduction to the principles of teratogenesis; this section alone contains 480 references. It is readable and generally clear, although a little contradictory in parts. For example, in relation to human growth retardation, Schardein quotes a 1981 definition as a birth weight less than 2500 g, which is in fact the definition of 'low birthweight', encompassing both babies that are small for gestational age, and preterm infants. However, he goes on to report a series of more recent papers (the latest being 1990) which correctly draw a distinction between growth retardation (failure to reach the growth potential of the individual, whatever their eventual

birthweight) and small for gestational age (commonly less than the tenth centile), which includes many small but normally grown babies and excludes a considerable number that are genuinely growth retarded. However, in the preface he laudably asks for readers to write in and correct any inaccuracies, so no doubt this small confusion will be corrected in the next edition.

The index for the main text seems comprehensive, and in using it in my own practice, I was always able to find at least a general comment and some more specific data and references about all the drugs and substances that I looked up (including, for example, vaccines). It is clearly not possible in a single volume which one can hope to lift, to provide an exhaustive list of data relating to each substance; for this one should properly refer to the manufacturer. However, this volume can be relied upon to produce a quick answer which can be amplified at leisure. Editorial comments are clinically appropriate; for example while pointing out the considerable teratogenic effect of quinine, it is emphasized that the effects of malaria are much worse. Similarly, while it is recommended that use of metronidazole in pregnancy be restricted, the clinician is reassured that 'if there is a risk, it must be minimal' (quoting a 1990 reference). The book rightly avoids the trap of making recommendations about clinical management, which must always be individualized. The small risk of teratogenicity with many drugs must be measured against the 2% average risk of foetal abnormality inherent in any pregnancy, and any consideration of termination of pregnancy must take into account the woman's age and likely subsequent fertility, her number of existing children, her social circumstances, and above all, her own personality and beliefs.

I am grateful to have this volume as an addition to my personal library; I would recommend it for departmental libraries, pharmacies and perinatologists.

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Book Review

The Pharmacology of Chinese Herbs

Kee Chang Huang

Published 1993 CRC Press, Inc., Boca Raton, FL

388 pages

ISBN 0 8493 4915 X £100.00

This book is a welcome source of information in English on some pharmacological aspects of traditional Chinese medicine (TCM) herbs for readers who are not familiar with Chinese texts. It is a particularly timely introduction to the UK market in view of recent increased interest and discussion on the issue of whether Chinese herbal therapy is a friend or foe (The Lancet, vol 341, 13 February 1993).

The book is divided into three major sections, Section I (Introduction) and Section II (History of Chinese Medicine) consisting of 5 and 7 pages, respectively, which set the background behind TCM and give a brief history its practice and evolution by tracing recorded work on TCM from as early as the 22nd Century BC to the Ming-Ching Dynasties (1368-1911 AD). Under Nationalist Government rule (1911-1949) the Ministry of Health sought to eliminate TCM practice. After the communist revolution (1949) the People's Republic Government re-established the importance of TCM. More than 10

TCM colleges and research institutes were set up in the coastal provinces and the West China provinces, in particular Szechuan.

At present, most medical students in China's western-style medical universities are encouraged to take courses on TCM. The Cultural Revolution (1960-1976) brought Chinese culture and science, amongst other issues, to a standstill. Medical publications during this period were mainly submitted by untrained "barefoot" doctors and require close scrutiny. My personal experience, gained working with Chinese colleagues from the early 1980s, indicates that the practice of and scientific research on TCM has been encouraged in many well known academic institutes.

The author obviously has difficulties in choosing which herbs to include, which herbs are considered therapeutically valuable. He is also aware of complications in combination formulae and decided not to include them in the book.

In Section III, the author describes the chemistry, actions, therapeutic uses and toxicity of herbs based on their therapeutic values. The author comments that the values of these chosen TCM herbs have been analysed convincingly by modern scientific methods with references. There are altogether 39 chapters under Section III. The categories reviewed include herbs affecting the cardiovascular system (e.g. those with multiple actions, cardiac anti-arrhythmic, anti-hypertensive,

anti-anginal, anti-hypercholesterolaemic and anti-shock activities), herbs affecting the nervous system (e.g. those with anaesthetic and muscle relaxing, sedative and hypnotic, anti-convulsive, analgesic, antipyretic, antirheumatic and central stimulating properties), herbs affecting the alimentary systems (e.g. those with stomach and "wind" dispelling, promoting digestion, antacid and anti-ulcer, laxative, anti-diarrhoeal, emetic and anti-emetic, choleric and anti-hepatitis, and tonic and energy supporting actions), herbs affecting the respiratory system (e.g. those with anti-tussive anti-tensive, expectorant and anti-asthmatic properties), herbs affecting the genitourinary system (e.g. those with diuretic, milk-promoting and anti-fertility actions), herbs affecting the haematopoietic system (e.g. those promoting blood formation, and with haemostatic and anti-stasic actions), herbs affecting the endocrine system (e.g. those affecting the thyroid gland, adrenal cortex, and with anti-diabetic action), and chemotherapeutic herbs (e.g. those with antibacterial, antiviral and antifungal, antitubercular, antiseptic and disinfectant, anthelmintic, anti-amoebic and anti-trichomonal, antimalarial and anti-cancer properties). The observations and related results are quoted from studies based on the use of crude extracts from these herbs.

The book arrangement is clear and neat but spoils somewhat

by the Chinese characteristics which should have been printed by Chinese typing or computer printing. Technology using Chinese word-processing is available. Another irritating feature, from a bilingual viewpoint, is that the English translation of the Chinese herb names is not consistent with the phonetics used in China at present (i.e. Putonghua). The phonetics used in the book are based on Mandarin, hence, spelt differently. For instance, the famous herbal classic of the Divine Plowman, which is the earliest known work on Chinese herbs, is translated as Sheng Nung Ben Cao Chien in the book. The accepted translation (probably quoted) in many other references is Sheng Nong Ben Cao Jing. I hope in the next edition the translations, especially for the chosen herbs, will be revised with herbal names. Confusion could then be minimized.

This book is a start for readers who are English speaking to gain an appreciation of popular TCM herbs which are often used in combinations by TCM practitioners. According to the "Foreword", the book has taken more than five years to compile. Professor Huang has made a great effort to bridge the gap of knowledge on TCM. It is a valuable text for those who are interested in TCM herbs.

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Book Review

Drug Toxicokinetics

(Drug and Chemical Toxicology Series/9)

Edited by Peter G. Welling and Felix A. De La Iglesia

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432 pages

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The title of this book, 'Drug Toxicokinetics' sounded like a contradiction in terms. My initial reaction was that toxicokinetics referred to chemicals other than those with a therapeutic use, and pharmacokinetics to drugs. However, a little further thought, stimulated by this book, suggests that it is useful to talk of drug toxicokinetics when one is looking at the kinetic and metabolic processes underlying the ephemerically named side-effects of potential therapeutic agents. Predictably, these processes are similar to those seen for other chemicals.

The Editors state that this work is intended as a manual or textbook rather than one dwelling on basic concepts. Chapters are based around three themes: basic analytical, kinetic and dynamic considerations; toxicokinetic studies for the development of basic knowledge required for all drugs; and toxicokinetic studies relating to specific compounds, grouped by therapeutic class. The classes covered are anti-cancer compounds, chemical carcinogens (signs of other chemicals slipping in?), compounds for use in atherosclerosis, CNS compounds and antibacterials. This seems to have led to a dichotomy in the approaches used by the various authors. One group has followed the manual type approach concentrating on 'how to do' with a minimum of theory and examples, the other seems to have carried out detailed analyses for selected examples. The latter approach is particularly successful in the chapters concerned with drugs from different therapeutic classes.

The approach is very much American in origin, with many of the authors of individual chapters coming from one company. The choice of therapeutic areas discussed may reflect this bias. Much of the toxicokinetic information for drugs is obtained as part of the pre-marketing regulatory package and is aimed at the patient. Such detailed information is only rarely acquired for most other chemicals. This is because individual patients are

deliberately exposed to drugs whereas human exposure can be minimized to a much greater extent for those manufacturing and using chemicals, including those intended for drug use. However, information obtained for drugs should be extrapolatable to people exposed to other agents and in other situations as well as to patients.

The book is targeted to effects seen in individuals. Human variability is therefore explored in depth. The book does not include a discussion of strain differences in animal metabolism and kinetics and how this relates to overall inter-individual variability in toxic responses within a (non-human) test species. It would be interesting to see how this comparison translates to differences in man.

It is easy to nit-pick and every reviewer will have predilections in what he or she would like to see. I would have preferred to see a little more on basic pathophysiology and its influence on routes and rates of excretion. Oral and parenteral administration dominates in human medicine, but I thought that greater detail concerning the physiological basis and kinetics of inhalation, exhalation and skin absorption might have been useful. For example, particle size and deposition site in the lung, the role of the tracheo-bronchial escalator and the relationships (for gases and vapours) of lipid solubility, lung ventilation rate and blood flow perhaps deserved greater attention. It lies behind understanding absorption (and exhalation) of inhaled drugs, including anaesthetics.

Overall, the book was a very interesting compilation of information which will be useful to everyone working on the development of new drugs. It also provides a summary of the relationships of toxicity and toxicokinetics for several interesting therapeutic areas. The book does not claim to be a basic text, and is not user friendly for those wishing to read it as such. Nevertheless, because the ideas and examples (many of which are new) deserve wide circulation among those involved in the experimental side of the development of novel drugs, it is worth a place in the library.

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(Views expressed are personal opinions and should not be taken as those of the Health and Safety Executive.)