

Book Reviews

Essentials of medical pharmacology, 6th ed. K.D. Tripathi [Jaypee Brothers Medical Publishers (P) Limited, New Delhi]. Third Reprint 2009. 940 pages. Price: not indicated. ISBN 81-8448-085-7

Pharmacology is one of the fastest growing biomedical disciplines. The latest information about existing and newly introduced drugs is required not only by undergraduate and postgraduate students of Pharmacology (medical, pharmacy, veterinary) but also by health care providers and medical practitioners. Further, the information has to be country-specific since drug availability and use is country specific to a certain extent depending on the disease pattern and local regulatory milieu. Locally written books, therefore, are more in demand than international treatises in Pharmacology, unlike many other biomedical disciplines.

Rapid growth of the subject necessitates frequent revision of the textbooks. This is a difficult job and perhaps the main reason why single or two author books in Pharmacology are being transformed gradually to a multi-author format. This facilitates updating but has its own consequences. Each author has his/her own way of treating a subject. A multi-author book therefore is less coherent due to lack of uniformity in approach.

The first edition of this book was published in 1985 and it has undergone 5 revisions in about 20 years. This continued acceptance is an indicator of its ability to meet important requirements of the biomedical fraternity of the country. It is creditable for the author to have undertaken such frequent and exhaustive review of the book single handed.

The book has been divided in 69 chapters arranged in 14 sections and 3 appendices besides a list of references for future reading and an exhaustive

index. The chapters have been well organized and the multi-coloured diagrams, graph and tables facilitate understanding the basic concepts and remembering them. The original illustrations explaining the mechanism of action are particularly useful. These and a few other exclusive features perhaps have helped the wide acceptance of the book. This has enabled the author to keep the book current by constantly removing obsolete data and adding latest information during frequent revisions.

The First section, dealing with general principles of drug action and their disposal is divided in 6 chapters. The basic aspects like the receptor pharmacology have been adequately discussed and mention has been made of the IUPHAR Receptor Classification System. One chapter has been devoted to the important area of Adverse Drug Effects. The chapter on Clinical Pharmacology (Chapter 5) stresses the concept of Good Clinical Practice (GCP) norms and refers to the international ICH Guidelines. It would have been better if the chapter also included the Guidelines developed by the Indian Council of Medical Research and mentioned the Helsinki Declaration about ethical aspects of clinical studies.

Most chapters of the book start with a brief but adequate description of the physiological background. This helps in explaining the mechanism of drug action in a rational and focused way. The drugs have been classified either on the basis of their chemical structure or mechanism of action. The dosage schedule, routes of administration, relevant desirable and avoidable drug interactions and side effects have been described for important drugs of each category. The major Indian trade names have been given for drugs available in India and should be particularly useful to young graduates and general practitioners. The regimen of treatment has been described for several important conditions like CNS

disorders (epilepsies, neurocysticercosis), cardiovascular diseases (congestive heart failure, myocardial infarction, hypertension), sexually transmitted diseases (STD), bacterial (tuberculosis, leprosy), viral (HIV) or protozoal (amoebiasis) infections, gastro-intestinal disorders (GERD, diarrhoea), cancer, *etc.* Rationale has been given, wherever necessary, for concurrent use of several drugs.

The section on Antimicrobial Drugs has a very useful initial chapter. It discusses problems associated with their extensive use including consequences like hypersensitivity and microbial resistance, factors affecting choice of drugs and use of rational combinations. Adequate data have been provided on anti-microbial spectrum, MIC, pharmacokinetics, dosage schedule and adverse effects, *etc.* of important drugs in succeeding chapters of the section.

The section on Miscellaneous Drugs includes chapters on gene therapy, vaccines and sera and on drug interactions. These subjects are not adequately covered in most textbooks of Pharmacology. There are four appendices. The first appendix lists drugs included in the Indian National List and the WHO Model List. The last Appendix provides another useful list of drugs or drug combinations banned in India. appendix 2 discusses general principles of prescribing drugs during pregnancy followed by choice of drugs for common conditions to pregnant women. Appendix 3 contains a list of drugs which are excreted in milk in significant amount and need caution when administered to lactating women. The information in all these appendices is not easily available in most textbooks and should be particularly useful for general practitioners.

A welcome feature of the book is inclusion of data on all drugs developed in India and currently being marketed in India. The only drug missed out is Urea stibamine. This was perhaps the first modern drug developed in India and still finds limited use in treatment of Leishmaniasis. There is also a little mix up where the same compound is referred by its International Nonproprietary Name (INN) Ormeloxifene on p. 305 and its trivial name Centchroman on p. 317. This can be corrected during the next revision or reprinting. Mention may also have been made of the Leprosy vaccine which has been developed in the country.

A list of references for further reading has been provided at the end of the book. It would have been better if a brief list was provided at the end of each chapter or each section.

The book is well written and produced and is practically free from 'printer's devils'. The multicolour printing, frequent revision and the uniform single author mode of presentation of the subject must have contributed significantly to the popularity and usefulness of the book. It is hoped that these features will be retained in future editions of the book. Some minor alterations may increase its acceptance even further. There should be little more detailed discussion of management of diseases like leishmaniasis and filariasis which are among the major health problems of the country. In the case of leprosy, mention should have been made of the leprosy vaccine and its possible role in treatment and prophylaxis. It would be useful to indicate with important drugs if these are included in Indian, British or US Pharmacopeias. The INN assigned by WHO should be mentioned wherever available. The appendices, or a separate section, should discuss use of drugs in paediatric and geriatric practice. In the General section there should be some discussion of Bioethics and of the regulatory milieu, particularly for new drugs.

It is hoped that the author would be able to maintain the single author format in future revisions and the "Essentials of Medical Pharmacology" will continue to be useful reference book for students of pharmacology and allied disciplines, health care providers and general practitioners.

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Medical statistics: Principles & methods, K.R. Sundaram, S.N. Dwivedi, V. Sreenivas [B.I. Publication (P) Ltd., New Delhi] 2009. 386 pages. Price: Rs. 395.00
ISBN 978817225 3196

The scope of the book is very ambitious as it covers many topics. Due to this, some of the important concepts are not covered thoroughly. In some sense it is a bonanza as one gets so much material under one umbrella. Many illustrations are done through flow charts, which are very informative. Good examples are given along with detailed calculations so that these can be replicated by the readers. Although a brief introduction of different statistical softwares is given in Chapter 14, it would have been nice if the authors had adopted one basic software and used it in solved

examples. The authors have given multiple choice questions at the end of each chapter. In order to test the knowledge of the readers, the numerical exercises should be in place in addition to these MCQs.

The first chapter starts with basic concepts and definitions required in the study of medical statistics. Some definitions are not properly stated such as “parameter” (§1.3.3, p.9), “homogenous and non-homogenous data” (§1.3.2, p. 8).

Sampling schemes are important part of planning any study. The distinction between various sampling scheme is explained in Chapter 2. The definition of “standard error” is incorrectly stated (§2.12, p.17).

The descriptive statistical methods are considered graphically as well as analytically in Chapter 3. The interpretation of summary statistics such as “correlation coefficient” is very illuminating. An important graph “relative frequency polygon” is missing. This is needed in comparing two or more variables measured on the same subjects.

The section on probability in Chapter 4 is not well written. The equation $P(A|B) = P(A) * P(B|A)$ (p. 82, §4.2.5) is not correct. In Fig. 4.2, \bar{X} should be μ . SND ranges from -1 to +1 is not correct (p. 95, para 1). The expression for SE is also not correct (p. 109). In examples of one-sided alternative hypothesis on page 110, the statement $\bar{X}_1 > \bar{X}_2$ is misleading. The statement of hypothesis is about parameter not about sample statistics.

In chapter 5, the authors fail to make distinction between “population” and “sample” when making the statement of hypotheses. In the definition of confidence limit ($LL = \text{mean} - C * SE$), C is not ‘confidence coefficient’ but is the critical value obtained from the Statistical Table corresponding to the prescribed confidence coefficient. There is inconsistency in the notation of hypothesis (H_A vs H_1). In §5.3.1, the statements about null hypothesis and alternative hypothesis are confusing. It should be $H_0: \mu = \mu_0$ vs $H_1: \mu = \mu_1$. There is misprint in expression for modified t (p. 120) and chi-square (p.133). In the notation of contingency table “x” should be used instead of “*” (e.g. 2 x2 instead of 2*2). It is good to see chi square test for linear trend in §5.6.2.8, as it is not easily available in other books on medical statistics. Yate’s correction is for using a continuous distribution (chi-square) to approximate a discrete one. This is not for small expected frequency as reported in the book. In the later case, Fisher’s exact test (§5.6.2.4) is employed.

The chapter 6 on nonparametric methods is presented in a very simple manner alongwith good examples. In §6.5, Conover³ is printed at wrong place.

The differences between “point prevalence”, “period prevalence” and “incidence” is explained nicely in Chapter 8. Various study designs are presented with good examples and their relative merits and demerits are covered in detail.

Chapter 9 on clinical trials is very informative. This will guide in the study of a well-planned clinical trial.

The importance of sample size estimation for a planned scientific study is well known. The sample size estimates are given for drawing inferences about various parameters (mean, proportion, odds ratio, etc.) as well as for survival analysis.

Various measures to assess the performance of a diagnostic test are discussed in chapter 11. These are followed by examples. An illustrative tree method for obtaining post-test probabilities is also presented.

Some basic terminologies related to demography are introduced and difference indices of vital events are presented in Chapter 12. In chapter 13, different types of hospital indices are discussed, which are useful in effectively planning and delivering health services in the country. It is nice to see the international classification of diseases, causes and causes of death.

With the invent of computers and statistical softwares loaded in them, everyone seems to be an expert in statistics. It is better not to use statistical methods than use these incorrectly. In that light, the chapter 15 on “Misuse of Statistics” is very important and thought provoking.

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Biostatistics: Principles and practice, B. Antonisamy, S. Christopher, P.P. Samuel (Tata McGraw Hill Education Pvt. Ltd., New Delhi) 2010. 349 pages. ISBN 978-0-07-015148-2

Biostatistics is increasingly becoming an integral part of medical/health education and research. Yet, there are very few biostatistics training resources and facilities in the country, and saving for an exceptionally

few, none of the medical institutes in the country have a qualified biostatistician on the rolls of faculty. Also the available books on the subject of Biostatistics are mainly from western authors and such books being expensive, are out of the reach of young statisticians and research workers who have just started their career. In this scenario, this book is an effort to help providing a simple, easy to understand and low priced source.

Though the book is written primarily as an introductory text for students and research workers in medicine, public health, nursing and biological sciences, it contains 21 chapters, including the basics of probability and probability distributions to the advanced topics such as survival analysis, multivariable methods and meta analysis. Thus the authors have tried to cover a wide variety of topics, some of which might be too early for a beginner.

A visual walkthrough in the beginning explains the flow of presentation of each chapter followed by the authors. At the end of every chapter 10 multiple choice questions are given, which should be useful for many medical students appearing for post graduate medical admissions.

Chapter one briefly describes the role of biostatistics in health sciences. Chapters 2 to 4 deal with the concepts of data presentation, summarization, probability and probability distributions. Though these chapters aim to introduce the basic ideas, the concept of assessing the fit of distributions without the description of how to fit a distribution might be a bit of out of place, especially for a beginner.

Chapter 5 deals with the sampling methods. This chapter is prone to confuse a reader and also may convey inappropriate messages. The statements such as selection of cases is typically done by purposive sampling in case-control studies; estimates based on sample surveys are more accurate than those based on total enumeration; the only advantage of systematic sampling over random sampling technique is its simplicity; population is a group of individuals in the population are some such examples.

Chapters 6 to 11 deal with the core issues of statistical inference, namely estimation, confidence

intervals, testing of hypotheses, parametric and non-parametric tests, *etc.* The indication of confidence interval for the population mean is inappropriate as population mean cannot have a standard error. The title of chapter 7 – “Testing of Statistical Hypotheses” conveys that the statistical component is the hypotheses part, whereas in reality it is the testing. In that sense, a title of “Statistical testing of Hypotheses” could have been more appropriate. In general, these chapters convey the principles clearly in simple language along with appropriate examples.

Epidemiologic aspects of study designs, measures of association, concepts of bias, confounding and interaction and the causality are well explained in chapter 12. This chapter would be very useful for many health workers and students. The explanations along with appropriate examples make the chapter very relevant for this category of readers. Brief introduction of clinical trials and diagnostic tests covered in chapters 13 and 14 are very relevant and important for a beginner aiming to have a career in biostatistics/ medical research.

The chapters on survival analysis and meta analysis are generally not seen in introductory books and in this respect this book is different. The concepts of survival, censoring, *etc.* and the issues involved in systematic reviews and meta analysis have been explained in simple terms which can be easily understood. The issues related to clinical measurement described in chapter 16 are well thought by the authors.

A few typographical and other mistakes are noticed here and there, which can be taken care of in the next editions. Similarly there is scope for improvement in the presentation language too. On the whole this book will be very useful for undergraduate medical, paramedical students and research workers.

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