Book Reviews

Sankaranarayanan, K.: Genetic Effects of Ionizing Radiation in Multicellular Eukaryotes and the Assessment of Genetic Radiation Hazards in Man. Amsterdam, New York: Elsevier Biomedical Press. b.v. 1982. xii + 385 pp., 3 figs., 67 tabs. Hard bound $ 85.–/Dfl. 190.–.

The effects of ionizing radiation can be divided into stochastic effects, for which each increase in dose is assumed to bring with it an increase in the probability that the effect occurs, and non-stochastic effects, for which it is generally assumed that there is a threshold dose above which the severity of the effect increases with dose. The stochastic effects are the most important effects at low doses and can be divided into the induction of malignancy arising from damage to somatic cells and the induction of genetic effects arising from damage to the reproductive cells. This book presents a thorough literature review of virtually all the important research which has been done on the genetic effects of ionizing radiation up to 1980 although one or two references on work from 1982 are also included.

After an introduction to the nature of the genetic damage, by far the largest part of the book presents a survey of what is known about Gene Mutations and Chromosome Aberrations. These two long chapters are divided into the consequences and levels of spontaneously occurring mutations and aberrations in humans, which are of crucial importance for the "doubling-dose" method of genetic radiation hazard assessment, and the radiation induced effects in other multicellular eukaryotes. In comparison, the chapter on Evaluation of Genetic Radiation Hazards in Man is relatively short and in the section on Estimates of Risk factors of 1.9 "to correct for the fractionation effect" and 3 "to correct for dose-rate effect" are used with no clear justification. In a book concerned, according to its title, with" ... the Assessment of Genetic Radiation Hazards in Man" one might have expected some discussion of the current opinions on dose-effect relationships for acute and chronic exposures and means of extrapolation to low doses. Although the review is not intended to be critical in nature, the author does indicate areas where more information is required and the book finishes with a brief chapter on Problems and Perspectives. The list of references runs to 60 pages!

The book is well written in a style which is easy to read. Personally I would have liked to see more figures and diagrams to complement the text and to have had a heavier type used for sub-titles which would have given a clearer breakdown of the text.

The book will obviously serve as a tremendously useful source of information for all who are involved in radiation genetics and provide a thorough introduction to the field for newcomers.

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