Book review

Proton and Charged Particle Radiotherapy. By Thomas F. Delaney and Hanne M. Kooy, Massachusetts General Hospital. pp. 280, 2008 (Lippincott Williams & Wilkins, a Wolters Kluwer business)

ISBN 10:0781765528, ISBN-13: 978-0781765527, 22 chapters.

There is a growing interest in charged particle therapy of cancer with increasing numbers of hospitals offering this advanced technology. Although many articles have been published in this area, "Proton and Charged Particle Radiotherapy" is the first fully comprehensive textbook containing detailed expert summaries of the entire process. The editors, Thomas Delaney (radiation oncologist) and Hanne Kooy (medical physicist), have invited chapters from a wide range of reputable international authors with strong representation from the Massachusetts General Hospital.

Much of the book concentrates on treatment methods and clinical outcomes of proton therapy, for which there is greater clinical experience compared with heavy ions. Topics covered in the first half include history of charged particle therapy, radiobiology, particle accelerators, beam delivery, treatment planning and patient positioning. The second half concerns clinical aspects of treatment with two chapters devoted to overviews of the proton and heavy ion therapy and the remaining 12 chapters based on tumour-specific sites. There is also a chapter on facility design, which should be of interest to hospitals wishing to obtain their own particle therapy centres.

The book is beautifully illustrated with excellent colour figures depicting detailed dose distributions, dose volume histograms, beam delivery equipment and clinical images. The views expressed throughout are well balanced, with comprehensive lists of references for each chapter. Technical issues involved in proton treatment, such as passive scattering and active scanning techniques, are described in appropriate detail in a manner that is easy to understand. Many of the clinical chapters compare particle therapy treatment outcomes with other approaches such as surgery and chemotherapy.

There are chapters which may require the reader to undertake some extra study, for example accelerator

systems may be challenging for some clinicians and some parts of clinical chapters may be equally taxing for physicists. There are some mild criticisms, such as the overuse of acronyms in some chapters; also, more could have been written about relative biological effect and dose per fraction, since different approaches are used in several countries.

Overall, for a book written by so many different authors and covering such an extensive range of topics, it is extremely well organised and highly readable, with remarkable consistency of style. This book will inspire physicists, clinical oncologists and radiographers to achieve the best possible dose distributions. It might even entice them to visit particle therapy centres abroad in order to learn even more about this promising branch of radio-therapeutics.

All oncologists need to develop a viewpoint of particle therapy within their own clinical practice. Site-specific clinical chapters in this book will allow specialist oncologists to appreciate the possible advantages of particle therapy in many practical situations. Such reading will enable more informed discussions with patients and their families concerning the merits of particle therapy and the possibility of obtaining treatment abroad before the UK possesses such facilities.

This book should become essential reading for examinations such as the Fellowship of the Royal College of Radiologists (on the assumption that examiners might also read this textbook and ask occasional questions on this theme). The training syllabus for health physics should ideally include this text. Surgeons and diagnostic radiologists with an interest in cancer, as well as medical oncologists, would benefit from reading many chapters. It is a very practical and useful book that should become a standard reference in the libraries of all UK cancer centres and medical schools.

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