

Book Reviews

WHO handbook on indoor radon - A public health perspective (World Health Organization, Geneva) 2009. 108 pages. Price: US \$ 30.00; in developing countries: CHF/US\$ 21.00
ISBN 978-92-4-154767-3

The Handbook on Indoor Radon was developed within the framework of the WHO International Radon Project. It is based on the contribution of more than 100 scientists and radon experts. Obviously, it underlines the importance of radon exposure from a public health point of view.

Exposure to radon, a radioactive gas which emanates from rocks and soils is now recognized as an important constituent of indoor air pollution. In several western countries, radon exposure is listed as the 2nd most frequent cause of lung cancer, the first being tobacco smoking. The two together are synergistic in action and add to the carcinogenicity. The book, therefore, is a timely addition to our understanding of the risks from radon exposure.

There are six chapters in the book besides the Executive Summary and other introductory pages. The Glossary of different terms is very useful for a reader who may not be essentially familiar with the commonly used terms. Each chapter provides a list of key-messages and references besides the figures and the tables, *etc.* These features are quite valuable.

The first chapter summarizes the existing knowledge on health effects of radon-exposure. It contains the data on radon risks from the major studies available on the subject. It also provides information on risks other than lung cancer. For example, besides lung cancer, the radon exposure is also linked to leukaemias, lymphomas, stomach-cancer, cardiovascular disease and multiple myeloma.

The 2nd and 3rd chapters respectively discuss the framework for radon measurements and the

radon exposure control options. The measurement framework includes the information on the devices and the procedures. The control options include the measures which can be adopted for new constructions as well as for the existing buildings (*i.e.*, the mitigation or the remediation strategies). The contents of these two chapters provide the practical guidelines for adoption by the concerned agencies. The cost-effectiveness analysis shown in chapter 4 clearly demonstrates the benefits of adoption of the control measures.

The last two chapters give the guidance on development of methods of communication of risk messages and on the development of national radon-programmes. Both these chapters are of special significance for the civil health authorities, the people concerned with the building industry such as the architects and the engineers, as well as the administrators and the policy makers.

The hand book is of topical interest in India in this era of a booming building industry and expansion of urbanization. This is a timely caution to avoid the occurrence of an 'epidemic' of lung cancer in future.

This is not a textbook or a monogram. Being a hand book, it is not exhaustive in its contents. But it is simple to read and comprehend. It provides a good introduction to the health personnel, physicians, pulmonologists and oncologists. It may also act as a stimulus for the experts to go deep into the subject and refer to the larger volumes.

S.K. Jindal

Department of Pulmonary Medicine
Postgraduate Institute of Medical
Education & Research
Chandigarh 160 012, India
dr.skjindal@gmail.com

Treatment of advanced stage cancers - Current status and emerging frontiers, Talwar GP, Sood OP, editors (Narosa Publishing House, New Delhi) 2009. 272 pages. Price: not mentioned.

This book is a collection of the papers presented at the 14th Annual symposium of Ranbaxy Science Foundation held on January 14-15, 2008 at the National Institute of Immunology, New Delhi, India. The book deals with one of the most important health problems facing mankind today, that is, the control of cancer. It gives an overall review of the various topics covered in relation to cancer control with up to date literature and provides good reading material and an eye opener to the beginners. To the experts in the field, information-wise, it may not be very useful because of the shallow treatment and relatively high familiarity with which some topics are treated, but it definitely serves as a pointer to recent literature. Even though the overall objective of the book is to present the recent trends in the treatment of cancers, the topics have covered right from the basic aspects to treatment to prevention of cancers. In many instances, a description of every pertinent study, whether negative or positive, is given. Each contributor has tried to discuss the topic at hand, to indicate the areas of ambiguity, and to suggest areas that warrant further study. This has been accomplished with more success in some chapters than in others, but that is to be expected in a publication with multiple authors. On the negative side, the formatting of the book is not up to the mark, some sections are badly written with contradictions and confusing statements and spelling and syntax errors.

The book has 26 chapters encompassing topics such as treatment of cancers using genomic and proteomic approaches, prevention and control using vaccines and immunotherapy, herbal products as adjuvants and basic aspects on micro RNAs, cancer metastasis and cancer progression. The first chapter on miRNAs and the inflammatory response by David Baltimore is one of the best lectures that I have heard through reading this book. When I say heard it is literally true because the presentation of the whole lecture with the powerpoint slides in the way it was presented by Baltimore made me feel as if I listening to him. The clear down to earth nature of the presentation of the basics taking one from the realm of NF- κ B to inflammatory processes and the role of micro-RNAs is simply captivating and leaves no element of doubt in the minds of the readers. Anybody reading this book need not refer to another book to understand micro RNAs and how these inhibit

the translation of an existing messenger RNA. He also stresses on the involvement of bioinformatics experts in the prediction of combinations of messenger RNAs and micro RNAs. From bioinformatic computations, the existence of 1000 micro RNAs is predicted in the human genome, each one acting on multiple mRNAs. Knowledge exists only on 500 of these. Micro RNAs appear to be involved in almost every cellular process. Viruses express miRNAs to regulate their genes; miRNAs regulate the exit from a progenitor to a differentiated state; help to switch neural progenitors to fully differentiated neurons; in developmental decisions; feedback regulatory pathways and so on. The importance of miRNA regulation is underscored by the number of diseases that have been found to be associated with abnormal miRNA expression such as cancer, age related diseases, heart disease, neurological diseases and immune function disorders. David Baltimore has used the LPS-TLR4 signalling pathway as the model to show the involvement of miR 146, 132 and 155 in immune response and demonstrates the role of miR146 as a feedback regulator of inflammatory activation and regulator of haematopoietic cell differentiation.

In spite of advances in therapeutic modalities for many cancers, the overall mortality and morbidity rates of cancers have not changed significantly in the last decade pointing towards the requirement of more effective treatment modalities with minimum side effects. This book throws light on some of the recent trends in therapeutic and prophylactic approaches to control of cancers.

Chapter 4 states the merits and demerits of the existing therapeutic modalities for hepatocellular carcinoma (HCC). Suggestions for future modes of therapy for HCC or the future prospects of the therapeutic modalities have not been touched upon by the author. Chapter 5 details the various tyrosine kinase mediated therapy for chronic myeloid leukaemia. This is supported by Chapter 6 which discusses the BCR-ABL dependant and independent mechanisms of resistance to the presently used drug imatinib in patients with advanced stages of chronic myeloid leukemia (CML). The BCR-ABL independent resistance is developed due to overexpression of SRC family kinases, blocking of imatinib by plasma protein alpha -1 acid glycoprotein and other mechanisms. Some of the strategies used to overcome these resistance phenomena such as administration of high doses which is associated with higher toxicity, alternative ABL inhibitors such as Dasatinib, Nilotinib, Bosutinib, and

second generation kinase inhibitors with agents that are active against the T3151 mutants, are listed. Chapter 3 describes the application of siRNAs in silencing of HIV-1 and hepatitis B virus X genes. siRNAs are especially of interest for cancer therapeutics because these allow specific inhibition of mutated oncogenes and other genes that aid and abet the growth of cancer cells. It has been shown that the siRNAs are more effective when administered in combination with either hammerhead ribozyme or specific anti-sense DNA molecules taking the siRNA technology to the next level. However, the problems such as delivery to specific tissues, stability of the RNA molecules in circulation, off-target effects, interference with the endogenous miRNA machinery and immune responses have not been taken into account. Chapter 7 talks about the influence of continuous overexpression of beta hCG in bringing about a multitude of endocrine anomalies including benign and malignant tumours in gonadal and extragonadal sites. Chapter 22 draws attention to the differential action of male and female hormones in modulating tumour cell proliferation and apoptosis through regulation of the expression pattern of cell death regulating genes p53 and CAD. Chapters 8, 2 and 26 show how overexpression of proteins, especially beta hCG and transglutaminase can be targeted for successful therapy of cancers. Cambridge molecular therapeutics programme (CMTP) demonstrated that the overexpression of aurora-A protein confers resistance to taxane and combination therapy of taxane and aurora inhibiting agents may improve treatment response. Chapter 23 shows the use of overexpression of sperm associated antigen-9 as a serum biomarker for epithelial ovarian cancers. Immunomodulation as a therapeutic means and vaccination strategies has been brought forth in Chapters 9-19. Chapter 9 deals with the use of CD30 receptor as a target for immunotoxin

mediated therapy. Chapter 10 explains the pro- and anti-tumour activities of CD40 in tumorigenesis and stresses on the increase of MHC molecules on immature and mature dendritic cells on CD40 engagement. Chapter 11 describes the characteristics of a good vaccine; chapter 12 the use of HPV peptide based vaccine in stimulating the dendritic cells; chapter 14 deals with the use of modified adenoviral vectors in combination with GM-CSF and IL-4 in enhancing antigen presentation by dendritic cells; chapter 19 shows the usefulness of *Mycobacterium indicus pranii* as vaccine for head and neck cancers. Chapters 16 talks of immunomodulation by radiation therapy; chapters 13, 17 and 18 demonstrate the potential of herbal products in cancer therapy through immune modulation. The last section of the book deals with basic aspects of cancers such as metastasis, molecular staging of gliomas, and on the role of microenvironment and inflammation in glioblastoma progression. Chapter 20 covers the various metastatic mechanisms in head and neck cancers. However, the role of integrins which are important in cell-matrix interactions has not been dealt with. Chapter 24 stresses on the use of a combination of molecular features and molecular attributes for improvement in diagnosis and management of the tumours.

In conclusion, this book caters to the requirements of clinicians, as well as basic scientists in the area of cancer research.

Prabha Balaram

Institute for Research in Molecular
Medicine, Health Campus
Universiti Sains Malaysia
16150 Kubang Kerian
Kelantan, Malaysia
prabhabalaram@yahoo.co.in