Basic and Clinical Concepts of Lung Cancer

Cancer Treatment and Research

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Basic and Clinical Concepts of Lung Cancer

edited by

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1989 **KLUWER ACADEMIC PUBLISHERS**
BOSTON / DORDRECHT / LONDON

Distributors

for North America: Kluwer Academic Publishers, 101 Philip Drive, Assinippi Park, Norwell, Massachusetts 02061, USA

for all other countries:

Kluwer Academic Publishers Group, Distribution Centre, Post Office Box 322, 3300 AH Dordrecht, The Netherlands

Library of Congress Cataloging-in-Publication Data

Basic and clinical concepts of lung cancer / edited by Heine H. Hansen.

p. cm.—(Cancer treatment and research)
Includes bibliographies and index.

ISBN-13: 978-1-4612-8882-4

e-ISBN-13: 978-1-4613-1593-3

DOI: 10.1007/978-1-4613-1593-3

1. Lungs—Cancer. I. Hansen, Heine Hoi. II. Series.

[DNLM: 1. Lung Neoplasms—diagnosis. 2. Lung Neoplasms—therapy.

W1 CA693 / WF 658 B311]

RC280.L8B37 1989

616.99'424—dc19

DNLM/DLC

for Library of Congress

89-2833
CIP

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Softcover reprint of the hardcover 1st edition 1989

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Preface

The last volume dealing with lung cancer in this series in *Cancer Treatment and Research* was published in 1986 and entitled *Lung Cancer: Basic and Clinical Aspects*. The present book continues the outline of the previous volume by presenting up-to-date information on lung cancer in critical reviews of new important basic and clinical concepts of lung cancer. The present volume has broadened the scope by also including chapters dealing with issues such as epidemiology, prophylaxis, and histopathology of lung cancer. The content of the book thus reflects the increasing awareness of a global disease that is more and more in focus, not only scientifically but also politically. The latter fact results increasingly in changes in health legislation, with prevention measures influencing everyday life. The great interest in the disease is natural, considering that more than one patient dies from lung cancer every minute globally.

The first chapter is from the Cancer Unit, WHO, Geneva, and describes in detail the epidemiologic features of lung cancer, which is the second most frequent cancer in the world with 660,500 new cases annually; it will soon surpass stomach cancer as the leader. Thirty-one percent of the cases occur in developing countries, where the increase is especially dramatic. It is alarming to see that the practically unlimited expansion of the tobacco industry in most developing countries is accompanied by a lack of legislative measures to control tobacco use and a lack of public education about the dangers of tobacco use. In the second chapter, the impact of prophylactic measures in the control of lung cancer is described by Cullen, from the National Cancer Institute, Bethesda, U.S.A. An impressive decline in smoking in American adults is now observed, thanks to broad-scale awareness campaigns. Ongoing intensive, multifaceted intervention research programs to identify effective smoking-control strategies are also described.

Histopathological features of lung cancer are presented in the next three chapters. McKay, from Houston, reports on the application of new technical procedures such as the use of electron microscopy and immunochemistry to the various types of bronchogenic carcinomas. Kung et al., from Hong Kong, describe the intra- and interobserver variability among experienced histopathologists using both histological and cytologic material for the vari-

ous cell types; both the WHO 1967 and WHO 1981 classifications have been tested. The application of immunohistochemistry is dealt with specifically by Shimosato et al. of the National Cancer Institute, Tokyo, who describes the usefulness of this procedure both for routine diagnostic pathology and for the study of lung cancer biology, especially with respect to cell differentiation and growth properties.

In the sixth chapter, Rodenhuis, from the National Cancer Institute, Amsterdam, brings us up to date on oncogenes, which are critical for the understanding of the biology of lung cancer. Their contribution to diagnosis, staging, and treatment is still modest, but is under rapid development.

Another area of biology with incipient clinical implications is covered by Mulshine et al., from the National Cancer Institute, Bethesda, U.S.A., in a chapter entitled *Autocrine Growth Factors and Lung Cancer*. The first phase-I clinical trials with monoclonal antibodies against growth factors have just been initiated. Additional biologic information is given in chapter 8 by Campbell et al., from Melbourne, who focuses on cytogenetic analysis of lung cancer and more recently developed techniques for molecular probing. It is conceivable that these studies will result in a reclassification of lung cancers that will better predict their biologic behavior and allow improved treatment selection.

The remaining part of the book treats a broad spectrum of clinical issues. Teeling et al., from Dublin, discusses the application of biomarkers in the clinical management of patients with lung cancer, suggesting that the presence of neuroendocrine markers in patients with non-small-cell lung cancer is a predictive marker for chemosensitivity. The issue of chemosensitivity is also addressed by Roed and Vindeløv, from the Finsen Institute, Copenhagen, who have established a large panel of cell lines. The authors describe the ongoing investigations with the aim of evaluating the potential of in vitro sensitivity testing to guide the selection of new drugs in order to improve therapy of small-cell lung cancer. Preclinical models of lung cancer are also a part of the chapter by Ferguson and Smyth, from Edinburgh. They have used human non-small-cell lung cancer xenografts and observed growth retardation testing α -interferon. The clinical activity of this compound either alone or in combination with cisplatin is also described.

Aisner and Whitney, from Baltimore, give an overview of recurrent and newer approaches in the pretreatment assessment of patients with lung cancer, including the first experience with magnetic resonance imaging (MRI). As to prognostic factors, important new information is presented by Sørensen, from Copenhagen, who has analyzed a series of 396 patients with adenocarcinoma, encompassing all stages, using advanced sophisticated statistical methods. In the next chapter, Holmes, from Los Angeles, presents the most recent data on the use of radiotherapy and chemotherapy in combination with surgery, including some of the first encouraging therapeutic results from multicenter studies performed in North America. Another area of front-line clinical research is the use of high-dose chemotherapy of

small-cell lung cancer with and without bone marrow transplantations, described in chapter 15 by Sculier and Klastersky of the Institute Jules Bordet, Brussels. Small-cell lung cancer is also the topic of the chapter by Kristjansen and Pedersen, from Copenhagen, who critically review the various forms of therapy of CNS metastases, including the controversial issue of prophylactic cranial irradiation. The last two chapters deal with consequences of treatment. Feld, from Toronto, covers all the complications associated with treatment of small-cell lung cancer, while Kaasa, from Oslo, sheds light in his chapter on the complex issue of the psychosocial aspects of lung cancer.

Altogether the book thus contains 18 chapters, with contributions from 12 countries covering four continents.

It has not been our aim to give a complete survey on lung cancer, but it has been our purpose to present information that will stimulate further research activities. The task is urgent, if we want to make an impact on this common malignant disease in this century.

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