

Infectious Complications of Cancer

Cancer Treatment and Research

Emil J Freireich, M.D., Series Editor

- Muggia F.M. (ed): *Cancer Chemotherapy: Concepts, Clinical Investigations and Therapeutic Advances*. 1988. ISBN 0-89838-381-1
- Nathanson L. (ed): *Malignant Melanoma: Biology, Diagnosis, and Therapy*. 1988. ISBN 0-89838-384-6
- Pinedo H.M., Verweij J. (eds): *Treatment of Soft Tissue Sarcomas*. 1989. ISBN 0-89838-391-9
- Hansen H.H. (ed): *Basic and Clinical Concepts of Lung Cancer*. 1989. ISBN 0-7923-0153-6
- Lepor H., Ratliff T.L. (eds): *Urologic Oncology*. 1989. ISBN 0-7923-0161-7
- Benz C., Liu E. (eds): *Oncogenes*. 1989. ISBN 0-7923-0237-0
- Ozols R.F. (ed): *Drug Resistance in Cancer Therapy*. 1989. ISBN 0-7923-0244-3
- Surwit E.A., Alberts D.S. (eds): *Endometrial Cancer*. 1989. ISBN 0-7923-0286-9
- Champlin R. (ed): *Bone Marrow Transplantation*. 1990. ISBN 0-7923-0612-0
- Goldenberg D. (ed): *Cancer Imaging with Radiolabeled Antibodies*. 1990. ISBN 0-7923-0631-7
- Jacobs C. (ed): *Carcinomas of the Head and Neck*. 1990. ISBN 0-7923-0668-6
- Lippman M.E., Dickson R. (eds): *Regulatory Mechanisms in Breast Cancer: Advances in Cellular and Molecular Biology of Breast Cancer*. 1990. ISBN 0-7923-0868-9
- Nathanson, L. (ed): *Malignant Melanoma: Genetics, Growth Factors, Metastases, and Antigens*. 1991. ISBN 0-7923-0895-6
- Sugarbaker, P.H. (ed): *Management of Gastric Cancer*. 1991. ISBN 0-7923-1102-7
- Pinedo H.M., Verweij J., Suit, H.D. (eds): *Soft Tissue Sarcomas: New Developments in the Multidisciplinary Approach to Treatment*. 1991. ISBN 0-7923-1139-6
- Ozols, R.F., (ed): *Molecular and Clinical Advances in Anticancer Drug Resistance*. 1991. ISBN 0-7923-1212-0
- Muggia, F.M. (ed): *New Drugs, Concepts and Results in Cancer Chemotherapy* 1991. ISBN 0-7923-1253-8
- Dickson, R.B., Lippman, M.E. (eds): *Genes, Oncogenes and Hormones: Advances in Cellular and Molecular Biology of Breast Cancer*. 1992. ISBN 0-7923-1748-3
- Humphrey, G., Bennett, Schraffordt Koops, H., Molenaar, W.M., Postma, A. (eds): *Osteosarcoma in Adolescents and Young Adults: New Developments and Controversies*. 1993. ISBN 0-7923-1905-2
- Benz, C.C., Liu, E.T. (eds): *Oncogenes and Tumor Suppressor Genes in Human Malignancies*. 1993. ISBN 0-7923-1960-5
- Freireich, E.J., Kantarjian, H. (eds): *Leukemia: Advances in Research and Treatment*. 1993. ISBN 0-7923-1967-2
- Dana, B.W. (ed): *Malignant Lymphomas, Including Hodgkin's Disease: Diagnosis, Management, and Special Problems*. 1993. ISBN 0-7923-2171-5
- Nathanson, L. (ed): *Current Research and Clinical Management of Melanoma*. 1993. ISBN 0-7923-2152-9
- Verweij, J., Pinedo, H.M., Suit, H.D. (eds): *Multidisciplinary Treatment of Soft Tissue Sarcomas*. 1993. ISBN 0-7923-2183-9
- Rosen, S.T., Kuzel, T.M. (eds): *Immunoconjugate Therapy of Hematologic Malignancies*. 1993. ISBN 0-7923-2270-3
- Sugarbaker, P.H. (ed): *Hepatobiliary Cancer*. 1994. ISBN 0-7923-2501-X
- Rothenberg, M.L. (ed): *Gynecologic Oncology: Controversies and New Developments*. 1994. ISBN 0-7923-2634-2
- Dickson, R.B., Lippman, M.E. (eds): *Mammary Tumorigenesis and Malignant Progression*. 1994. ISBN 0-7923-2647-4
- Hansen, H.H. (ed): *Lung Cancer. Advances in Basic and Clinical Research*. 1994. ISBN 0-7923-2835-3
- Goldstein, L.J., Ozols, R.F. (eds): *Anticancer Drug Resistance. Advances in Molecular and Clinical Research*. 1994. ISBN 0-7923-2836-1
- Hong, W.K., Weber, R.S. (eds): *Head and Neck Cancer. Basic and Clinical Aspects*. 1994. ISBN 0-7923-3015-3
- Thall, P.F. (ed): *Recent Advances in Clinical Trial Design and Analysis*. 1995. ISBN 0-7923-3235-0
- Buckner, C.D. (ed): *Technical and Biological Components of Marrow Transplantation*. 1995. ISBN 0-7923-3394-2
- Sugarbaker, P.H. (ed): *Peritoneal Carcinomatosis: Diagnosis and Treatment*. 1995. ISBN 0-7923-3489-2

Infectious Complications of Cancer

edited by

J. KLASTERSKY

*Institut Jules Bordet
Bruxelles, Belgium*



1995

KLUWER ACADEMIC PUBLISHERS
BOSTON / DORDRECHT / LONDON

Distributors for North America:

Kluwer Academic Publishers
101 Philip Drive
Assinippi Park
Norwell, Massachusetts 02061 USA

Distributors 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

Infectious complications of cancer / edited by J. Klastersky.

p. cm. — (Cancer treatment and research ; CTAR 79)

Includes bibliographical references and index.

ISBN-13: 978-1-4612-8527-4

e-ISBN-13: 978-1-4613-1239-0

DOI: 10.1007/978-1-4613-1239-0

1. Cancer—Complications. 2. Communicable diseases.
3. Infection. 4. Immunosuppression. I. Klastersky, J. (Jean)

II. Series.

[DNLM: 1. Neoplasms—complications. 2. Infection—complications.
W1 CA693 v.79 1995 / QZ 200 I435 1995]

RC262.I498 1995

616.99'4—dc20

DNLM/DLC

for Library of Congress

95-30912

CIP

Copyright © 1995 by Kluwer Academic Publishers

Softcover reprint of the hardcover 1st edition 1995

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher, Kluwer Academic Publishers, 101 Philip Drive, Assinippi Park, Norwell, Massachusetts 02061

Printed on acid-free paper.

Table of Contents

Preface	vii
Contributing Authors	ix
1. Factors Predisposing Cancer Patients to Infection Claudio VISCOLI and Elio CASTAGNOLA	1
2. Signs and Symptoms of Infections and Differential Diagnosis from Noninfectious Conditions Robert HEMMER	31
3. Chemoprophylaxis for the Prevention of Bacterial and Fungal Infections J. Peter DONNELLY	45
4. Infection Control for Oncology R. Todd WIBLIN and Richard P. WENZEL	83
5. Empiric Therapy for Bacterial Infections in Neutropenic Patients Jean KLASTERSKY	101
6. New Antifungal Compounds and Strategies for Treatment of Invasive Fungal Infections in Patients with Neoplastic Diseases Thomas J. WALSH and Caron A. LYMAN	113
7. Herpesvirus Infections in Immunocompromised Patients Robert SNOECK and Erik DE CLERCQ	149
8. New and Unusual Infections in Neutropenic Patients Stephen H. ZINNER	173
9. Pneumonia in Cancer Patients Estella WHIMBEY, James GOODRICH and Gerald P. BODEY	185

10. Intravascular Device-Related Infections in Cancer Patients Issam I. RAAD and Giuseppe FRASCHINI	211
11. Indications for Intensive Care in the Management of Infections in Cancer Patients Jean-Paul SCULIER	233
12. Colony-Stimulating Factors: Current Applications and Perspectives Dominique BRON and Frank JACOB	245
13. Drug Interaction and Pharmacological Considerations During Anti-Infective Therapy in Cancer Patients O. PETITJEAN, P. NICOLAS, and M. TOD	255
Index	281

Preface

In spite of major developments in our therapeutic armamentarium for the treatment of infections, the morbidity and mortality of these complications remains very high in patients with compromised defenses. Cancer and its treatment represent a major predisposing condition to various infections. These adverse events are still with us, in spite of much progress in the therapy of infectious diseases, because cancer therapy is becoming more aggressive, further lowering the capacity of the host to cope with infections. Moreover, pathogens adapt quite effectively to our drugs at a pace that might overcome the ability of the industry to provide new active agents. Finally, new pathogens appear as a consequence of both selection and severe immunosuppression.

Because infection is so common in cancer patients, its diagnosis and management represent a daily challenge to all oncologists. To help the practicing physician master this broad and changing area of medicine, a continuing educational effort is mandatory. It is the goal of this book to provide a comprehensive review of the most crucial and challenging aspects of infectious complications in cancer patients.

Contributing Authors

Gerald P. Bodey, M.D., Section of Infectious Diseases, M.D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030, USA

Dominique Bron, Institut Jules Bordet, Service de Medicine et Laboratoire D'Investigation Clinique, Centre des Tumeurs de L'Universite, Libre de Bruxelles, Belgium

Elio Castagnola, Clinical Immunology Service, Infectious Disease, National Institute for Cancer Research, Viale Benedetto XV, 10-16132 Genova, Italy

E. De Clercq, Rega Institute for Medical Research, K.U. Leuven Minderbroedersstraat 10, B-3000 Leuven, Belgium

J. Peter Donnelly, BSc, FIMLS, MI Biol, Ph.D., Departments of Haematology and Microbiology, University Hospital Nijmegen, Geert Grooteplein 8, P.O. Box 9101, 6500 HB Nijmegen, The Netherlands

Giuseppe Fraschini, M.D., Department of Medical Specialties, Section of Infectious Diseases, Department of Gynecological and Breast Medical Oncology University of Texas, M.D. Anderson Cancer Center, Houston, TX 77030, USA

James Goodrich, M.D., Ph.D., Section of Infectious Diseases, M.D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030, USA

Robert Hemmer, Department of Infectious Disease, Centre Hospitalier de Luxembourg, L-1210 Luxembourg

Frank Jacob, Institut Jules Bordet, Service de Medicine et Laboratoire D'Investigation Clinique, Centre des Tumeurs de L'Universite, Libre de Bruxelles, Belgium

Jean Klastersky, Service de Medecine Interne et Laboratoire d'Investigation, Clinique, H.J. Tagnon, Institut Jules Bordet, Centre des Tumeurs de L'Universite, Libre de Bruxelles, Belgium

Carol A. Lyman, Ph.D., Infectious Diseases Section, Pediatric Branch, National Cancer Institute, National Institutes of Health, Bethesda, MD 20892, USA

P. Nicolas, Departement de Pharmacotoxicologie-Hopital, Avicenne 125, Route de Stalingrad, 93009 Bobigny Cedex, France

O. Petitjean, CREPIT 93, UFR-Paris Nord, 74, rue Marcel Cachin 93012 Bobigny Cedex, France

Issam I. Raad, M.D., Department of Medical Specialties, Section of Infectious Diseases, Department of Gynecological and Breast Medical Oncology University of Texas, M.D. Anderson Cancer Center, Houston, TX 77030, USA

Jean-Paul Sculier, Service de Medicine Interne et Laboratoire d'Investigation, Clinique H.J. Tagnon, Institut Jules Bordet, Centre des Tumeurs de L'Universite, Libre de Bruxelles, Belgium

R. Snoeck, Rega Institute for Medical Research, K.U. Leuven Minderbroedersstraat 10, B-3000 Leuven, Belgium

M. Tod, CREPIT 93, UFR-Paris Nord, 74, rue Marcel Cachin, 93012 Bobigny Cedex, France

Claudio Viscoli, Clinical Immunology Service, Infectious Disease, National Institute for Cancer Research, Viale Benedetto XV, 10-16132 Genova, Italy

Thomas J. Walsh, M.D., Infectious Diseases Section, Pediatric Branch, National Cancer Institute, National Institutes of Health, Bethesda, MD 20892, USA

Richard P. Wenzel, M.D., M.Sc., Department of Internal Medicine, University of Iowa College of Medicine, Iowa City, IA 52242, USA

Estella Whimbey, M.D., Section of Infectious Diseases, M.D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030, USA

R. Todd Wiblin, M.D., Department of Internal Medicine, University of Iowa College of Medicine Iowa City, IA 52242, USA

Stephen H. Zinner, M.D. Director, Divisions of Infectious Diseases, Rhode Island Hospital, Brown University School of Medicine, Providence, RI 02908-4735, USA