and appreciation of the work of their mentor.

Acknowledgments


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Pneumocystis Pneumonia,
3rd Edition

Edited by Peter D. Walzer and Melanie T. Cushion

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The significant advances in knowledge about Pneumocystis organisms in recent years are subtly reflected in the title of the third edition of this text, which is part of the series Lung Biology in Health and Disease (executive editor, Claude Lenfant). Whereas the previous volumes were entitled "Pneumocystis carinii Pneumonia," the latest volume is called simply "Pneumocystis Pneumonia." This recognizes the changes in Pneumocystis taxonomy that have redefined the human pathogen as Pneumocystis jirovecii, the rat pathogen as P. carinii, and the 2 murine species as Pneumocystis wakefieldiae and Pneumocystis murina.

The volume fittingly begins with a brief tribute to the late Ann Wakefield, who achieved so much in her work on Pneumocystis; then, after the prefaces, a helpful introduction suggests appropriate conventions for Pneumocystis nomenclature.

The remainder of the book is divided into 3 sections. Part 1, “The Organism,” has 7 chapters and begins with a historical overview, followed by a detailed chapter on the genetic differences among Pneumocystis organisms, showing the wide diversity of the group and the close relationship between Pneumocystis species and their host animal, in evolutionary terms. Many more of these fungi—for example, species infecting rats, rabbits, and ferrets—await the acceptance of binomial nomenclature. There follow chapters on cell structure, as revealed by electron microscopy, with a description of current thinking on life cycle and replication, studies on surface antigens (particularly the major surface glycoprotein), and signal transduction pathways. The chapter on transmission and epidemiology clarifies current thinking, which is that the organism is acquired early in life, can be carried without symptoms for long periods of time, can be spread between immunocompetent and immunocompromised hosts, and has high infectivity. A discussion of the background to the Pneumocystis Genome Project, which is yielding a wealth of sequence data, follows.

Part 2 has 7 chapters relating to the control of Pneumocystis infection, beginning with a review of the evidence for acquisition of the organisms in the neonatal period; the unclear role of maternal antibody; and the reasons for a permissive state in the lungs of the neonate, which is perhaps the result of delayed appearance of cytokine and chemokine expression in immature lungs and delay in development of the cellular immune response. Further chapters explore the interactions of Pneumocystis species with the phagocytic alveolar macrophages (one of the key areas in the control of infection in the otherwise healthy host), the changes in the surfactant environment in pneumocystosis, and the nature of the humoral and cellular immune responses. The mechanisms by which Pneumocystis species produce lung damage are the result of direct effects of the organism but also immune-mediated responses of the host. The implications of this fact for the management of infection lead logically into Part 3 of the book, the section on human disease. There is a comprehensive review of P. jirovecii pneumonitis (PCP) in HIV-infected patients. PCP is still the major AIDS-defining illness throughout the world (there is a separate chapter on PCP in resource-poor countries) and a frequent cause of respiratory failure. The clinical features, the variety of radiographic manifestations, and an approach to management of this infection are well presented. As the number of patients being treated with immunosuppressive agents has increased in recent years, PCP has become increasingly important in immunocompromised patients who are not infected with HIV, and infection in this group, mainly in association with transplantation, is discussed.

Molecular typing methods have been instrumental in delineating the epidemiology of Pneumocystis infection, and these methods, as well as the molecular characterization of mutations conferring resistance to sulfonamides and atovaquone, are described in separate chapters. Additional chapters focus on immune responses, prophylaxis, and treatment; identification and testing of candidate drugs active against Pneumocystis species are discussed, together with the identification of novel drug targets.

Although there are some inconsistencies in the nomenclature used in different chapters, some indexing errors, and an occasional legend relating to the wrong figure, these are minor irritations and are relatively few for a book of this size. They in no way detract from what is a very worthwhile volume for those interested in Pneumocystis infection. This is a comprehensive and invaluable resource for information on the scientific aspects of the study of these remarkable fungi, as well as the clinical issues relevant to Pneumocystis infection. The editors are to be congratulated for assembling the expert team that has produced this solid body of information.

Acknowledgments


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