

Book review

CMV-Related Immunopathology

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In spite of the apparent decline in the incidence of invasive human cytomegalovirus (HCMV) infections in patients infected with HIV and improvements in the management of HCMV infections in allograft recipients, the interest in mechanisms of disease associated with HCMV infections seems to increase each year. This interest is reflected by the proliferation of meetings in which HCMV is the sole topic. The emphasis of many of these meetings has been the synthesis of basic mechanisms of viral pathogenesis with the clinical characteristics of patients with invasive HCMV disease. This monograph is a collection of papers presented at such a meeting, the First International Consensus Round Table Meeting on CMV-Related Immunopathology held in Frankfurt in August of 1997. The book has been divided into four sections: (1) general aspects of immunomodulation by CMV; (2) CMV disease in allograft recipients and AIDS patients; (3) aspects of antiviral therapy for CMV disease; and (4) newer, quantitative approaches for the diagnosis of HCMV disease.

Several discussions of the possible role of cytokines and chemokines in the pathogenesis of HCMV infections are included in the first section of the book. Although an overview by Michelson provided a background for several subsequent papers, the complexity of in vitro models of cy-

tokine-virus interactions and discrepancies between the observations of different laboratories leads the reader to doubt any consensus on this subject has been reached. Undoubtedly, the clinical manifestations of invasive HCMV infection in allograft recipients cannot be explained solely by viral cytopathology and likely involves amplification of pathogenic host responses. However, the description of potential contribution of various cytokines to the clinical manifestations of HCMV infection appear overly speculative at this point and require adequate exploration in relevant animal models. An example of the second approach can be found in the description of the animal model of neonatal murine CMV infection provided by Trgovcich and co-workers. These investigators suggest a hypothesis in which single cytokine TNF- α could play a central role in the pathogenesis of this HCMV infection in newborn mice. Similar models combined with appropriate knock-out mice and antibody depletion of individual cytokines will permit dissection of the complex interplay between protective immunity and immunopathologic responses. In contrast to the first section of the monograph, the papers which describe salient features of HCMV disease in allograft recipients provided a very clear and useful discussion of the features of HCMV disease in these populations. Furthermore, reasonably complete descriptions of two very interesting models of CMV infection, the murine CMV model of disease following bone marrow transplantation and the rat CMV model of accelerated atherosclerosis following cardiac allotransplantation were

included in this section. These models offer experimentally manipulable systems for dissecting many of the mechanisms of virus-induced disease proposed in earlier sections of the monograph. For readers unfamiliar with these models, these short papers offer brief but excellent overviews. Overall this section of the monograph contained several very informative and interesting papers, all of which were extensively referenced. The section on antiviral therapy contained a review of current antiviral therapy for CMV disease with an emphasis on the properties of available nucleoside analogue. The review of antiviral agents by DeClercq is brief but provides a foundation for additional reading and as well as pertinent references. Likewise the limited but well written description of the mechanism of HCMV resistance following amino acid substitutions in UL97 provides a very useful summary of mutations of this viral protein and in the UL54 open reading frame which lead to resistance to various nucleoside analogues. Finally, the last section of the book contained several excellent reviews of the role of viral load monitoring in the management of CMV disease. The discussions by The and Emery are particularly noteworthy and point to the potential of quantitative measures of HCMV replication in the management of CMV infections in immunocompromised hosts. Both chapters will serve as useful primers for investigators unfamiliar with newer developments in the area of CMV diagnostics.

This monograph could be recommended to readers interested in immunological mechanisms

of disease associated with HCMV infection in allograft recipients. For investigators active in this area of research, this volume offers limited new information; however, the overviews will be of value to virologists and immunologists with research interests outside the specialized topics of research described in this monograph. Although only brief discussions of antiviral therapy and diagnostic approaches for detection of invasive disease are provided, these sections of the monograph serve as a solid introduction to central issues surrounding the clinical management of HCMV infections in immunocompromised patients. In recent years many meetings have incorporated the term consensus within summary statements which are developed following the meeting. Although this is a laudable goal of any meeting, this reviewer would suggest that a consensus will be difficult to reach at any meeting of herpes virologists. Thus, the reader should be forewarned that this monograph represents only the consensus of the limited group of investigators attending this meeting.

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