Human Emerging and Re-emerging Infections

Emerging and re-emerging infectious diseases present tremendous challenges to the world’s medical and public health enterprise, highlighted by the recent Ebola epidemic in Africa, the recognition of serious birth defects due to Zika virus infections in the Western Hemisphere, and the fact that 3.2 billion people (nearly half the world’s population) continue to live in areas at risk of malaria transmission in 106 countries and territories.

It is indeed timely that Dr Singh and nearly 150 distinguished contributors have collaborated to produce an authoritative, well-organized, and extensively referenced 2-volume text that will be an invaluable resource for infectious diseases physicians, fellowship trainees in infectious diseases subspecialties, epidemiologists, clinical microbiologists, and basic scientists in the infectious diseases field. The 26 chapters of volume 1 highlight the pathogenesis of viral, protozoal, and helminthic infections, and the 26 chapters of volume 2 focus on bacterial and fungal infections. Chapters are logically organized with sequential numerical identifiers for sections and subsections, which generally include an introduction, taxonomy of the pathogen, genomics, unique molecular and ultrastructural characteristics, epidemiology (including reservoirs, intermediate hosts, vector[s], seroprevalence, and transmissibility), clinical spectrum of disease, treatment, and preventive strategies including vector control, pharmacologic prophylaxis, and vaccination. High-quality black-and-white diagrams and charts abound throughout the chapters, and color plates are found in volume 1, chapter 13 following page 250, and in volume 2, chapter 40, following page 750.

The first 2 chapters of volume 1 address the pathogenesis in humans of Old World and New World arenaviruses, which include the largest number of viral species causing viral hemorrhagic fevers. Detailed information is provided on the structure of the viral genome and on the genetic diversity of 2 of the more prevalent Old World arenaviruses, Lassa virus and lymphocytic choriomeningitis virus. Transcription, replication, and synthesis of viral proteins and the cell receptors involved in viral entry are carefully explained, and barriers to vaccine development are identified. Although no therapeutic agent is currently licensed for the treatment of viral hemorrhagic fevers, it is noted that intravenous ribavirin has demonstrated efficacy in treating Lassa fever if administered early in the course of disease. The chapter authors also note the very recent change in taxonomy within the family Arenaviridae—namely, the genus Arenavirus has been replaced by 2 genera, Mammarenavirus and Reptarenavirus, in accord with the presence of virus in mammalian and reptilian hosts. The clarity and detail of the coverage of the subject material in chapters 1 and 2 is replicated throughout the 2 volumes.

Chapters 3–12 in volume 1 cover the pathogenesis of bunyavirus infections, Rift Valley fever, hantavirus infection, Japanese encephalitis virus infection, dengue, West Nile virus, chikungunya, Nipah virus, Hendra virus, and rotavirus infection. Chapter 13 delineates the spectrum of human papillomavirus infection, including skin, cervical, and head and neck manifestations, and the role of the vaccine in reducing the risk of carcinoma of the cervix. Chapter 14 reviews the pathogenesis of the diseases caused by Kaposi sarcoma–associated herpesviruses, which include Kaposi sarcoma, primary effusion lymphoma, and multicentric Castleman disease. Chapters 15–22 highlight microsporidiosis, toxoplasmosis, African trypanosomiasis, leishmaniasis, Chagas disease, cryptosporidiosis, malaria, and trichomoniasis. Chapters 23–26 review the pathogenesis and manifestations of infections caused by helminths, including Loa loa, nematode larva migrans, schistosomiasis, and parasitic zoonoses.

Volume 2, chapters 27–48, cover bacterial infections, and chapters 49–52 focus on fungal infections. Each chapter is organized with emphasis on taxonomy, unique molecular and ultrastructural characteristics, epidemiology of infection, and clinical spectrum of disease, as well as treatment and prevention. Infections due to Haemophilus influenzae, Campylobacter jejuni, Francisella tularensis, Yersinia pestis, Legionella pneumophila, Kingella kingae, Helicobacter pylori, Chlamydia trachomatis, Bordetella pertussis (whooping cough), organisms of the genus Ehrlichia, Neisseria gonorrhoeae, Corynebacterium diphtheriae, Corynebacterium ulcerans, Staphylococcus aureus, Listeria monocytogenes, Bacillus anthracis, group A and B streptococci, Clostridium botulinum, Mycobacterium ulcerans (Buruli ulcer), Mycobacterium tuberculosis (diagnostics and drug resistance), Ori entia tsutsugamushi (scrub typhus), Borrelia burgdorferi (Lyme borreliosis), gram-negative rod organisms expressing New Delhi metallo-β-lactamase, Cryptococcus neoformans, Candida albicans, Pneumocystis jirovecii, and Aspergillus species.

As a pulmonary disease/critical care medicine physician, I found the 2 volumes to be an enlightening and highly informative resource. One minor concern is the extensive use of acronyms, particularly in the chapters on viral infections, frequently
necessitating “paging back” to refresh memory of the acronym’s expansion. In subsequent editions of the text, it would be helpful to insert footnotes with acronym expansion throughout the chapters.

Note

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Stephan L. Kamholz
Department of Medicine, Maimonides Medical Center, Brooklyn Clinical Campus of the Albert Einstein College of Medicine, New York