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Feature Articles

Infectious Diseases and the Persisting Microbial Challenge

This issue of the Henry Ford Hospital Medical Journal features several articles* about new and/or important pathogens as well as advances in the therapy and prevention of the associated infectious diseases. The contributors are specialists, or those who have a special interest, in infectious diseases. In addition to describing the latest advances in clinical infectious diseases, these reviews and updates illustrate that the gap between the basic sciences and clinical medicine is closing. Conceptually, science frequently is far ahead of medical practice. The authors try to remind us of the rationale behind, or the origin of, many recent advances in this field.

The relevance of these new advances is demonstrated by the development of many highly effective antimicrobial agents and vaccines described in the papers by Drs. Ramon del Busto, William M. Valenti and Miriam J. Alter. The advances are the results of experiments in physical chemistry, in molecular biology, and even in recombinant DNA technology.

The basic science of immunology also has rapidly increasing importance as a forerunner to advances in clinical medicine. Although still relatively new, this area has already become one of the most significant in medicine. Basic science discoveries have provided the knowledge to discover where specific immunologic defects may occur or what immunologic mediators are abnormal. This is well illustrated by the excellent review on the immunology of the acquired immune deficiency syndrome (AIDS) by Drs. Patrick W. McLaughlin and Carl B. Lauter. With this kind of information, further developments in immune modulation should be forthcoming in clinical medicine. Although, as Drs. Bosko Postic and Julio C. Arroyo point out, one such immune modulator, interferon, has been used with limited benefit, we now know that there is impaired production of immune (gamma) interferon in patients with AIDS. This recognition is a major achievement. The future role of this agent in treating or preventing AIDS awaits clinical trials. The ability to target therapy at a specific host-defense defect is a new approach to the treatment of infectious diseases. These advances will also benefit other clinical areas in which immune defects contribute to disease or complicate therapy — oncology, hematology, rheumatology, and organ transplantation.

Although steadily increasing knowledge advances our understanding of the therapy of infectious diseases, the challenge of the microbial world for the future is no less awesome. In the last decade, we have learned to recog-

nize the devastating effect on the human system of numerous pathogens, both new and old, such as Legionella species, the cause for Legionnaires' disease; Chlamydia trachomatis, the agent most frequently responsible for sexually transmitted diseases; Clostridium difficile, the cause of pseudomembranous colitis; and the human T-cell leukemia virus with its possible role in AIDS.

These microbial challenges behoove us to heed Pasteur's admonition:

If conquests useful for humanity touch your heart . . . take an interest, I beg of you, in those sacred places to which we give the expressive name of laboratories. Demand that they be multiplied and ornamented, for these are the temples of the future, of wealth, and of well being. It is in them that humanity grows, fortifies itself, and becomes better. There it may learn to read in the works of nature the story of progress and of universal harmony, even while its own creations are too often those of barbarism, fanaticism, and destruction (1).

Through continued study and experimentation carried out in research laboratories, additional advances will be forthcoming, especially if research is directed toward the resolution of clinical questions which confront us daily in hospital wards. If clinical and laboratory arenas continue to work in concert, the specialty of infectious diseases will remain one of the most prominent fields of endeavor in the coming decades.

Guest Editor

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Reference

1. Krause RM. On entering Pasteur's second century. The restless tide. The National Foundation for Infectious Diseases, 1981:14.

*Ed. Note: Four of these papers were presented at a meeting on the "Diagnosis and Management of Infectious Diseases" sponsored by Henry Ford Hospital on January 11, 1984. The article by Drs. McLaughlin and Lauter on "Immunology of the Acquired Immunodeficiency Syndrome" was part of a day-long meeting on this syndrome held at the Hospital on April 18, 1984.