

Guest Editorial

Shifting Paradigms in Infections and Inflammations

The inevitable, but unpredictable, appearance of new infectious diseases has been recognized for the millennia, well before the discovery of causative infectious agents. Today, however, despite extraordinary advances in development of counter measures in the field of diagnostics, therapeutics, and immunization, the ease of world travel and increased global interdependence have added layers of complexity to containing these infectious diseases that affect not only the health, but also the economic stability of societies and which have resulted in either of the two major categories of emerging situations—newly emerging and re-emerging infectious diseases. This realization has highlighted the complexity of the epidemiology of infections and has resulted in advances in diagnostic techniques and management modalities which have continuously changed our ability to combat disease.



The pathogens may suppress, subvert or evade host defenses and may cause DNA damage, induce apoptosis, modulate enzyme activities and gene expression or elicit an autoimmune response without persistence of the initiating agent. The outcome of infection is as much determined by the genetic predisposition of the patient as by the virulence and biology of the infecting agent, environmental factors and nutritional status. This situation results in the basic problem—that of inflammation. Inflammation, as defined by Stedman's concise medical dictionary, is 'a fundamental, stereotyped complex of cytologic and chemical reactions that occur in affected blood vessels and adjacent tissues in response to an injury or abnormal stimulation caused by a physical, chemical, or biological agent'. And infection leads to inflammation. So, infection and inflammation go hand in hand as a team and the etiopathogenesis and management of both are interdependent.

The field of anaerobic microbiology and mycology has arguably developed quite well to its current level and yet an insight into the disease process reveals our inadequacies in their accurate and adequate management and this has brought us in the midst of a major paradigm shift in our understanding of the disease process.

Another key concept, that of biofilms and the understanding that the host inflammatory response dictates the composition of the biofilm is another area that needs researching as the resultant inability of the antibiotics to penetrate the bacterial cells and host tissues is fast turning into the bane of successful treatment of infections. Understanding the pathogenesis of a disease is important as it has direct impact on treatment strategies.

We have to be alert and able to not only identify, diagnose and manage the disease of the new pathogens, but also the altered pathogen characteristics, e.g. the emergence and spread of multiresistant tuberculosis, hypercommunity-acquired *Staphylococcus aureus*, virulent fungal invasion of the tissues and the immune related viral disorders affecting the body. Priority needs to be focused on these areas for research in the future. This will result in major implications for public health, treatment, and prevention of these problems.

There are enough problems in the field of to fill several issues of a publication. Be it tonsillitis and the role of *Streptococci* in its pathogenesis, the role of endoscopes and lasers in management of fungal diseases, the allergic manifestations and its etiopathogenesis, benign lesions mimicking malignancies or erosions due to osteomyelitis, lesions mimicking tuberculosis or the role of radioimaging in diagnosis of difficult lesions are some of the issues that have been focused in this issue.

The goal of this issue is to bring together a few of such dilemmas which may help the readers to be aware of such problems and their possible management.

Achal Gulati

Director Professor
Department of Otorhinolaryngology and
Head and Neck Surgery
Maulana Azad Medical College and
Associated LN Hospital
New Delhi, India

