

A microbial Menace: An Emerging Infections in 21st Century

Anjani Kumar Upadhyay

KIIT University | KIIT • School of Biotechnology M.tech in Biotechnology

Abstract

Microbes causing deadly diseases have threatened human health for many centuries. They live in every imaginable ecological niche on the earth and have colonized the earth for many long years. There are majority of microbial communities which are essential to human or other living beings. But occasionally, many microbes are spotted as a pathogen as they have the ability to cause an acute infectious disease or sometimes, they may activate the pathway that leads to chronic diseases, and hence they become the biggest threat to mankind. Infectious diseases are the head to head fight between the microbial world and the world of human physiology. Within the last 100 years, these microbial and human worlds were immensely modified in an unparalleled way by another player, human civilization, with its worldwide impact on the environment via chemical, climatic, physical, and societal provocation. And because of these, microbial threats will continue to emerge, reemerge, and persist. Some may cause newly recognized diseases; others may be formerly studied pathogens that are causing new and larger population.

A big question arises that what could be the factors that intervene both individually and in an amalgam that are contributing to the emergence of these microbes? Infectious agents which are also a living organism undergoes genetic change and evolution. This caliber of microbes reveals their potential ability to infect new hosts, by modifications in their susceptibility to antimicrobial drugs, and also making drastic changes in their reception to host immunity. Human conduct, both individual or collective too can be the complex factor in disease emergence. In today's world, we are also facing threats of deliberately introduced biological agents.

Infectious diseases will remain the major cause of disease globally (World Health Organization, 1992) and will not be inhibited during our lifetimes. But with the new applied scientific knowledge, fully planned treatment strategies, decent resources, and political testament, the majority of the diseases may be prevented. Some of the major strategies could be immunization, use of drugs, or vector control methods.

The 21st century has witnessed a number of advanced technologies that improved life and health and often transformed the industry. Many new biologically active nanostructures are being developed, modern vaccinology has also made spectacular progress in recent years using modern technologies, combinational chemistry has also evolved as an efficient tool in the screening for new anti-infectives, microbial gene expression profiling has rapidly taken the lead in this field and is superseding simple genome sequencing.

This chapter will majorly emphasize the threat of microbes to mankind, important factors linked in the emergence of infectious diseases, & new opportunities to combat them through the novel and creative solutions.

Biography:

Cirujano – Dentista Universida de Chile. Magíster en Ciencias Odontológicas Universidad de Chile. Profesor Clínico Asociado, Escuela Odontología, Pontificia Universidad Católica de Chile Autora de capítulos de libros y publicaciones científicas nacionales e internacionales en el área de cariología.

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