Research & Reviews: Journal of Microbiology and Biotechnology e-ISSN: 2320 - 3528

Medical Microbiology and Its Application in Medical Science

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Opinion Article

Received: 26-May-2022, Manuscript No. JMB-22-68398; **Editor assigned**: 30-May-2022, Pre-QC No. JMB-22-68398(PQ); **Reviewed**: 13-Jun-2022, QC No. JMB-22-68398; **Revised**: 20-Jun-2022, Manuscript No. JMB-22-68398 (R); **Published**: 27-Jun-2022, DOI: 10.4172/2320-3528.11.5.003

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DESCRIPTION

A branch of medical science involved that deals with the prevention, diagnosis and treatment of infectious diseases is known as medical microbiology, a sizable subset of microbiology that is applied to medicine. Additionally, this branch of science investigates numerous clinical uses of microorganisms for enhancing health. Bacteria, fungi, parasites, viruses and one particular infectious protein known as a prion are the four types of microorganisms that cause infectious disease. A medical microbiologist investigates the traits of pathogens, their means of transmission, their modes of infection and their growth mechanisms.

Although the clinical aspect of the field primarily focuses on the presence and growth of microbial infections in individuals, their effects on the human body and the methods of treating those infections, epidemiology, the study of the patterns, causes and effects of health and disease conditions in populations, is a significant component of medical microbiology. Although there is a fluid continuum between public health microbiology and clinical microbiology in reality, the entire field can be conceptually divided into academic and clinical sub-specialties in this regard as an applied science, just as the state of the art in clinical laboratories depends on ongoing advancements in academic medicine and research laboratories. It's possible for bacteria, viruses, fungi and parasites to cause infections. The disease causing pathogen might be exogenous. The portal of entry is the location where a microorganism enters the body. These include the skin, mucosal membranes, genitourinary system, gastrointestinal tract and respiratory tract. The portal of entry for a specific microbe is normally dependent on how it travels from its natural habitat to the host. Viruses enter the body by various routes of transmission, similar to other diseases, but they differ in that they also need to infiltrate the host's real cells. The virus genetic material must be introduced to the cell once it has obtained access to the host's cells. Virus replication varies significantly and is influenced by the

genes that make up each one. While most RNA viruses only form in the cytoplasm, the majority of DNA viruses assemble in the nucleus. A virus ability to infect, multiply and survive in host cell tissues is essential to its survival. For instance, some illnesses, like the measles have a method that requires it to spread to a number of hosts. Therefore, the virus has to spread to new hosts before it is eliminated by immunological resistance or host death in these types of viral infections where the illness is frequently treated by the body's own immune response. However, some infectious agents, like the feline leukemia virus, have the ability to defy immune responses, establish a long-term home within a single host and still disseminate to additional hosts. Clinical manifestation, such as gastrointestinal disorders and skin infections, might be used to identify an infectious agent causing a minor illness. Epidemiological considerations must be taken into account, such as the patient's likelihood of exposure to the suspected organism and the presence and distribution of a microbial strain in a population, in order to make an educated guess as to which microbe may be causing the sickness. The patient's medical history and a physical examination are typically used to start the diagnosis of an infectious condition. Microscopy, biochemical assays, genotyping and microbiological culture are examples of more in depth identification methods. Images showing internal anomalies caused by the growth of an infectious agent are produced using other procedures.