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Diagnostic Pathology of Viruses

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Description

Pathogenesis is the process by which an infection leads to illness. Pathogenic mechanisms of viral disease include implantation of the virus at the entry point, local replication, spread to the target organ and spread to the environment to the site of viral shedding. Factors that influence the pathogenic mechanism are the accessibility of the virus to tissues, the susceptibility of cells to viral replication, and the susceptibility of the virus to host defense. Natural selection supports the predominance of less virulent viral strains. The etiology of the virus is the study of the processes and mechanisms by which the virus causes disease in the target host, often at the cellular or molecular level. Pathogenesis is a qualitative explanation of the process by which the initial infection causes the disease. Viral disease is the sum of the effect of viral replication on the host and the host's subsequent immune response to the virus. The virus causes infection, spreads throughout the body, and can be propagated by certain virulence factors.

There are several factors that influence the pathogenesis. Some of these factors include the pathogenic characteristics of the infecting virus. To cause the disease, the virus must also overcome some of the inhibitory effects present on the host. Suppressive effects include distance, physical barriers, and host defense. These inhibitory effects vary from person to person due to the genetic control of the inhibitory effect.

Other factors that determine the incidence of infection and disease are many pathogenic features of the infecting virus. To cause disease, the infecting virus must be able to overcome physical barriers, distance, host defense, and suppressive effects on changes in cell susceptibility to infection. The inhibitory effect is genetically regulated and may vary by individual and race. Due to its pathogenic characteristics, the virus can cause infection, spread throughout the body, and replicate in sufficient numbers to affect target organs. These factors include the ability to replicate under certain circumstances during inflammation, exothermic reactions, cell migration, and in the presence of naturally occurring endogenous inhibitors and interferon. Very virulent strains are common in viral populations. Occasionally, these strains dominate due to abnormal selection pressure. Identification of viral proteins and genes involved in specific pathogenic functions is still in its infancy.

Virus etiology

The virus etiology is a complex sequence of interactions between the virus and the host, whether the virus successfully establishes an infection in the host, and if so, the infection is a virus. Determine if it causes an inducible disease. The etiology of each virus is unique, but as mentioned above, there are several stages in the viral life cycle shared by all pathogenic viruses that explain the common theme of viral etiology. Our knowledge of the etiology of the virus is based on experimental data collected by many researchers over the last century. Much of the focus of viral etiology is on viral virulence factors. However, pathogenicity can only be defined in the context of virus and host combinations. In addition, there is ample evidence that highly pathogenic viruses have been selected for specific genetic variation of the host within the target population.

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