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Introduction

The central nervous system (CNS) is a complex and highly sensitive organ that is vulnerable to a wide range of infectious agents. Neuroinfections, which encompass a variety of pathogens including bacteria, viruses, fungi, and parasites, can lead to significant morbidity and mortality. The pathogenesis of neuroinfections is multifaceted, involving the breach of the blood-brain barrier, the establishment of a niche within the CNS, and the subsequent immune response. Clinical manifestations of neuroinfections are diverse and can range from subtle cognitive changes to severe neurological deficits. Diagnostic challenges often arise due to the non-specific nature of many neuroinfectious agents, necessitating a high index of suspicion and the use of advanced diagnostic techniques. Treatment options are limited and often depend on the specific pathogen involved, with many neuroinfections requiring long-term or lifelong therapy. Prognosis varies significantly, with some neuroinfections being self-limiting and others leading to permanent neurological damage. Public health implications of neuroinfections are substantial, particularly in developing countries where access to healthcare and diagnostic services is limited. Research advances in the field of neuroinfectious diseases have led to a better understanding of the underlying mechanisms of these infections and the development of novel diagnostic and therapeutic strategies.

Neuroinfections are a significant public health problem, particularly in developing countries. The central nervous system (CNS) is a complex and highly sensitive organ that is vulnerable to a wide range of infectious agents. The pathogenesis of neuroinfections is multifaceted, involving the breach of the blood-brain barrier, the establishment of a niche within the CNS, and the subsequent immune response. Clinical manifestations of neuroinfections are diverse and can range from subtle cognitive changes to severe neurological deficits. Diagnostic challenges often arise due to the non-specific nature of many neuroinfectious agents, necessitating a high index of suspicion and the use of advanced diagnostic techniques. Treatment options are limited and often depend on the specific pathogen involved, with many neuroinfections requiring long-term or lifelong therapy. Prognosis varies significantly, with some neuroinfections being self-limiting and others leading to permanent neurological damage. Public health implications of neuroinfections are substantial, particularly in developing countries where access to healthcare and diagnostic services is limited. Research advances in the field of neuroinfectious diseases have led to a better understanding of the underlying mechanisms of these infections and the development of novel diagnostic and therapeutic strategies.

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