

Emerging Techniques in Identifying Neglected Infections

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Description

In the field of clinical and experimental pathology, the perpetual search to understand and cure infectious diseases has long been a driving force for scientific exploration. These overlooked pathogens, often termed "forgotten pathogens," represent a significant challenge to global public health due to their subtlety and their propensity to cause chronic, debilitating conditions. However, recent advances in diagnostic technologies have revitalized the endeavor of these pathogens, offering regained hope in our efforts to identify and mitigate their impact.

Neglected infections, frequently caused by a diverse array of parasites and bacteria, have historically received little attention due to a combination of factors including limited resources, inadequate diagnostics, and the geographic isolation of affected populations. As a result, these infections often remain silently, causing a considerable burden of disease in marginalized communities and even contributing to a cycle of poverty and reduced economic productivity.

The field of infectious disease diagnostics has undergone a transformation in recent years, with emerging techniques. One pivotal advancement has been the integration of genomics and metagenomics into the diagnostic toolkit. By harnessing the power of high-throughput sequencing, researchers can now swiftly and comprehensively analyze complex microbial communities within clinical samples. This approach has made out the presence of previously undetectable pathogens and highlighted their role in various diseases.

In addition to genomics, metabolomics and proteomics have emerged as formidable allies in the fight against neglected infections. These techniques offer insights into the unique metabolic and protein signatures associated with different pathogens. By identifying specific biomarkers, researchers can develop rapid and accurate diagnostic

assays, expediting the detection and differentiation of multiple pathogens simultaneously.

Immunodiagnosis, long a crucial part of infectious disease diagnostics, has not been left behind in this technological revolution. Innovations in immunoassays and multiplex platforms have enabled the detection of a wider range of antibodies, aiding in the identification of exposure to multiple pathogens. Furthermore, the application of artificial intelligence to analyze complex immunological data has enhanced our ability to discern patterns that may be indicative of specific neglected infections.

While these emerging techniques hold immense possibility, their integration into routine clinical practice and global health initiatives is not without difficulty. Financial constraints, infrastructure limitations, and the need for specialized training remain challenges, particularly in resource-limited settings where neglected infections often prevail. Collaborative efforts between researchers, clinicians, policymakers, and international organizations are essential to ensure equitable access to these advancements.

The resurgence of interest in neglected infections through the knowledge of emerging diagnostic technologies marks a pivotal moment in the disagreements with these skilled opponents. As we revisit these concept of infectious disease

In conclusion, the ongoing transformation of diagnostic capabilities within clinical and experimental pathology offers a possibility of hope in the field of neglected infections. By bringing out the knowledge of genomics, metabolomics, proteomics, and immunodiagnostics, we are able to revisit the forgotten pathogens and show their roles in human health. As we move forward, a collective commitment to connecting the gaps between research, clinical practice, and policy will be crucial in realizing the full potential of these emerging techniques and ensuring that no pathogen remains neglected in the shadows.