Parasitic disease management: strategies, challenges, and future directions.

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Introduction

Parasitic diseases remain a major public health concern across many parts of the world, particularly in tropical and subtropical regions. These diseases, caused by protozoa, helminths, and ectoparasites, contribute significantly to global morbidity and mortality. Managing parasitic diseases involves a complex interplay of diagnosis, treatment, prevention, and control strategies, supported by healthcare infrastructure, policy frameworks, and community engagement. This article explores the current landscape of parasitic disease management, highlights major challenges, and outlines potential future directions [1, 2, 3, 4].

Overview of Parasitic Diseases

Parasitic diseases such as malaria, leishmaniasis, schistosomiasis, lymphatic filariasis, giardiasis, and soil-transmitted helminthiases affect millions worldwide. These infections often thrive in regions with poor sanitation, inadequate water supply, and limited access to healthcare [5, 6, 7].

Parasitic diseases are transmitted through vectors (e.g., mosquitoes, sandflies), contaminated food and water, or direct contact with infected individuals or animals. The impact is especially severe in low- and middle-income countries, where resources for control and treatment are limited.

Diagnostic Approaches

Accurate and early diagnosis is critical for effective management. Traditional methods include:

Microscopy: Still widely used, particularly for malaria and intestinal parasites.

Serological tests: Detect antibodies or antigens (e.g., ELISA).

Molecular diagnostics: PCR and other nucleic acid detection methods offer high sensitivity and specificity.

Rapid Diagnostic Tests (RDTs): Useful in field settings for diseases like malaria and filariasis.

Improving diagnostic capacity at the point of care is essential, especially in resource-limited settings [8, 9, 10].

Conclusion

Parasitic disease management is a multifaceted endeavor requiring sustained efforts in diagnosis, treatment, prevention, and public health infrastructure. By addressing current challenges and leveraging new scientific and technological advances, we can make meaningful progress toward reducing the burden of parasitic diseases and improving health outcomes globally..

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