Zoonotic Diseases: Bridging the Gap Between Humans and Animals.

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Introduction

Zoonotic diseases, or zoonoses, are infectious diseases that can be transmitted between animals and humans. These diseases can be caused by bacteria, viruses, parasites, or fungi, and they represent a significant threat to global health. Over 60% of all known infectious diseases in humans are zoonotic, and a significant proportion of emerging infectious diseases are zoonoses. Examples include COVID-19, Ebola, Zika, rabies, and malaria. The rise in zoonotic diseases is closely linked to environmental changes, human-animal interactions, and global interconnectedness. This article explores the nature of zoonotic diseases, their impact on human health, and the strategies needed to control and prevent them [1-3].

What Are Zoonotic Diseases?

Zoonotic diseases are those that can be transmitted from animals to humans, or vice versa. The transmission can occur directly, through close contact with animals or their products (such as milk or meat), or indirectly, through vectors like mosquitoes, ticks, and fleas that carry the pathogens from animals to humans. Some zoonotic diseases are sporadic, while others can cause large outbreaks or even pandemics [4, 5].

Types of Zoonotic Diseases

Zoonotic diseases can affect humans in many ways, and their severity can vary from mild symptoms to life-threatening conditions. COVID-19, caused by the SARS-CoV-2 virus, emerged as a global pandemic in late 2019. It is believed to have originated in bats and possibly passed to humans through an intermediate animal host, although the exact origins remain under investigation. COVID-19 primarily spreads through respiratory droplets but can also be transmitted via contaminated surfaces. Its rapid global spread highlighted the capacity of zoonotic diseases to cause pandemics and dramatically affect human societies.COVID-19 led to millions of deaths worldwide and caused widespread disruptions to global economies and healthcare systems [6-8].Ebola, a deadly viral haemorrhagic fever, is transmitted from animals (particularly fruit bats) to humans. Humans can contract the virus through contact with the blood, organs, or bodily fluids of infected animals or other infected humans. The disease has a high fatality rate, and outbreaks are often confined to certain regions, notably in parts of sub-Saharan Africa. Ebola outbreaks can have devastating effects on local communities and health systems, with fatality rates often exceeding 50%. Despite the availability of vaccines, outbreaks continue to pose a serious threat. The Zika virus is primarily transmitted to humans through the bite of infected Aedes mosquitoes, which can carry the virus from infected animals or humans to new hosts. Zika gained international attention during the 2015-2016 outbreak in Latin America and the Caribbean, especially due to its link to birth defects, particularly microcephaly in new-borns. Although Zika is often asymptomatic or causes mild illness, its association with birth defects has raised significant concerns, especially in pregnant women. Rabies is a viral disease that primarily affects mammals, including dogs, bats, and other wildlife. It is transmitted through the saliva of an infected animal, typically via bites or scratches. Once symptoms appear in humans, rabies is almost always fatal. However, rabies is preventable through vaccination, both for animals and humans at risk of exposure. Rabies causes around 59,000 deaths annually, primarily in low-income countries, and most cases are the result of dog bites [9,10].

Conclusion

Zoonotic diseases are a growing threat to global health, fueled by factors such as globalization, environmental changes, and intensive agricultural practices. As pathogens continue to spill over from animals to humans, the risk of pandemics and regional outbreaks increases. A coordinated global response, based on the One Health approach, is critical to preventing, detecting, and controlling zoonotic diseases. By strengthening surveillance, improving animal and human health, and enhancing public awareness, we can reduce the risk of zoonotic diseases and better protect both human and animal populations.

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