CHAPTER 9

CLIMATE CHANGE AND VECTOR-BORNE DISEASES

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Frequently Used Terms in Parasitology:

Host: The organism on or in which the parasite lives, causing harm to it, is generally larger than the parasite.

Definitive Host: The host that harbours the adult or sexually reproducing form of the parasite.

Intermediate Host: The host that harbours the immature or asexually reproducing form of the parasite.

Reservoir Host: Organisms that allow the parasite to continue its natural life cycle.

Vector: An invertebrate (arthropod) that transmits a microorganism from an infected vertebrate to a healthy vertebrate.

Biological Vector: A vector in which the microorganism undergoes development or reproduction.

Mechanical Vector: A vector that carries the microorganism from one host to another without any changes occurring in the microorganism, simply by contamination on mouthparts or body surfaces.

INTRODUCTION

Climate change primarily refers to the ongoing rise in global average temperature and its effects on the Earth's climate system. These changes have been occurring since the existence of the planet. However, the current increase in global average temperature, which began with the Industrial Revolution, is progressing much faster and more destructively due to the excessive use of fossil fuels compared to previous periods(1). This situation

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CONCLUSION

In this section, we have discussed the effects of climate change on the transmission and spread of VKHs. Short-term local climate changes, while not always exhibiting similar effects, generally have a positive impact on the spread of VBDs. Regional climate changes also produce a dual effect, with heatwaves increasing the transmission of VBDs, while cold spells negatively influence their spread. Additionally, prolonged regional heatwaves promote the wider spread of vectors and VBDs. Extreme climate events can enhance the transmission of diseases, leading to an expansion of VBD distributions. Furthermore, land use and human mobility create interactions among vectors, hosts, and humans, increasing the likelihood of VBD spread. It is estimated that global temperatures may rise by 4°C by 2100 due to long-term climate change. If no measures are taken against this situation, VBDs are expected to expand from the equator to the poles and from lowland areas to mountainous regions. Such a situation will cause serious outbreak risks and public health problems in communities that have not encountered the disease before, with inadequate health measures and immunologically naive populations.

There are many different areas that need to be examined regarding climate change and VBDs. For these studies to provide realistic solutions, disciplines such as microbiology, public health, zoology, entomology, ecology and epidemiology should work in an integrated manner. With such studies, the effects of climate change on VBDs, the mechanisms of formation and development of vector-borne infectious diseases will be better analysed, and the measures that can be taken for prevention and control will be discussed in a healthy manner.

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