

A Review on the Effects of Global Warming

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ABSTRACT:For all facets of human life, including infectious diseases, global warming has significant consequences. The effect of global warming depends on the dynamic relationship between the population of the human host and the infectious agent that causes it. From a human point of view, environmental changes can cause human migration, causing disease trends to move. Host resistance to infections can be reduced by crop failures and famine. Transmission of diseases can be increased by the lack and pollution of drinking water. From sources. Importantly, the current public health system can be weakened by severe economic and political stresses, leaving mankind poorly equipped for unforeseen epidemics. The abundance and distribution of disease vectors will certainly be affected by global warming. They will become more conducive to altitudes that are presently too cool to sustain vectors. Some populations of vectors may spread to new geographical areas, while others may vanish. Among the many vector-borne diseases that are likely to be infected are malaria, dengue, plague, and viruses that cause encephalytic syndromes. Some models indicate that as the earth warms, vector-borne diseases will become more widespread, but caution in interpreting these predictions is required. Clearly, global warming will cause improvements in infectious disease epidemiology. Humanity's ability to respond or adjust depends on the change's magnitude and speed. The outcome would also rely on our ability to detect epidemics early, efficiently control epidemics, provide sufficient care and devote resources to prevention and research.

KEYWORDS:Climate, Global warming, Infectious diseases, Syndromes.

INTRODUCTION

Svante Arrhenius, the Swedish chemist, first predicted global warming in 1896[1]. Since then, among scientists, politicians and environmental experts alike, it has been a hotly debated topic. Global warming is a slow phenomenon that, over time, threatens to have significant effects, including elevated sea levels, crop failure and drought, changes in global patterns of rainfall, changes in the populations of plants and animals, and extreme health effects[2]. Infectious diseases are global entities that are dynamically dependent on the relationship of the population with the geographic climate that occurs. Global warming could therefore result in a major change in the spectrum of infectious diseases[3]. The basic concepts of global warming will be incorporated in this study, concentrating on the literature on the effect of climate change on human health and infectious diseases is currently available, and provides a potential image of things to come. A compendium of intelligent and rational guesswork based on experience with past climate patterns and statistical projections of predicted climate change are the literature available on the future of global warming. Finally, some scientists suggest that global warming is not as malevolent as it is generally perceived to be and may potentially have beneficial aspects. In the course of the study, this perspective will also be discussed.

Concept and Consequences of the Global Warming

A basic understanding of the greenhouse effect is important for the idea of global warming. Solar radiation travels through the atmosphere to the surface of the Earth and is absorbed[4]. This heat is lost to infra-red radiation from the earth's surface. As the atmosphere does not escape the infra-red radiation, easily as it joins the solar radiation. Any of it is trapped by a variety of gases that behave close to the glass in a greenhouse, resulting in the greenhouse effect. Heat may enter but cannot escape. The term greenhouse effect was first

invented by the mathematician and physicist, Jean Baptiste Fourier, in 1827[5]. The greenhouse effect of nature is responsible for elevating the temperature of the Earth, making it possible for life to survive. Carbon dioxide, methane, nitrous oxide, hydrocarbons, perfluorocarbons and sulfur hexafluoride are greenhouse gases[6]. Naturally, carbon dioxide, methane and nitrous oxide exist, while artificially produced hydrocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6) and their derivatives. The most thermally absorbent are HFCs and PFCs. More heat per molecule is absorbed by methane and nitrous oxide than by carbon-dioxide. A drain, which is a reservoir that takes up a chemical product from another part of the cycle, is nature's buffer against many of these greenhouse gases. The soil and trees function as natural sinks which, in the form of CO₂, absorb hundreds of billions of tons of carbon. Needless to mention, global warming is enhanced by practices such as unchecked deforestation and could potentially face an environmental catastrophe. Population size and global warming are associated because greenhouse gas production is increased by human activities. Global warming culminates in this effect. Over the 20th century, the observed increase in global temperature was 0.3 to 0.6 C and this increase is expected to intensify. 1987, 1988, 1983, and 1980 were the warmest years in descending order[7].

Impact of the climate on the health of the human beings

The exact danger faced by climate change is difficult to quantify. The effect depends on the complicated relationship between the human host population and the causative infectious agent, with specific regard to infectious diseases. Important human variables include crowding, lack of food, poverty and the degradation of the local climate. Indirect impacts on natural environments may result in certain health effects of climate change. Altered climatic conditions, for example, can alter vector environments such as mosquitoes or rats and affect the parasites they bear. The seasonal incidence of many infectious diseases could change and cause them to spread by shifting the abundance and geographic range of carriers and parasites. The influence of global warming is highly dependent on the ability to adapt of humans and public health systems. Human migration and the economic stresses of climate variability could endanger human settlement and seriously overwhelm the infrastructure of public health. Malnutrition, due to crop failure, could further exacerbate this scenario. Facing this complex challenge makes it important for interdisciplinary collaboration between health practitioners, climatologists, environmental biologists and social scientists to recognize and address this threat that could arise from global warming effectively.

Water

Water is a fundamental requirement and it is of utmost importance to its availability. At present, 1.1 billion people do not have access to ample clean water sources, and 2.4 billion do not have access to proper sanitation. Adjusting to new shortages and/or taking action to ensure that global warming supply would place a heavy burden on developing countries' already strained national exchequer. Various solutions to minimize the possible shortage of water systems as a result of climate change include measures to eradicate profiteering, effective management of available water systems. Water, infrastructure changes, integrated agricultural policies, urban planning and management. Integrated management of water resources should be prioritized at the national and regional levels. It is also important to preserve the quality of conserved water. Water is a crucial compound used for cooking, dissolution and basic use. The effects of infected water from infectious diseases may be important. Childhood diarrhea around the world is also a significant cause of premature

mortality. If water quality deteriorates, epidemics of cholera, typhoid, and similar diseases can be expected. However, it is interesting to note that successful household-level water purification and storage attempts are superior to attempts at decontaminating water at its source. As well as studies of home water treatment and storage interventions, Gundry et al. reviewed observational studies exploring this relationship[8].

Vector Borne Diseases

Global climate change will impact vectors of diseases, which in turn can change current vector-borne disease trends[9]. Arthropods, the most common vectors, are cold-blooded, meaning that their internal temperature is greatly influenced by their environment's temperature. Both the vector and host factors will depend on the occurrence of arthropod-borne diseases. To some degree, climate will influence all of these variables, but will have the most direct impact on the size of the vector population. Among the many vector-borne diseases that may be infected are malaria, dengue, plague, and encephalitis-causing viruses. Global warming's effect on malaria has been actively discussed[10]. We prefer to think of malaria as a tropical illness in modern times. Nevertheless, malaria has been found in many temperate parts of the world. As far north as the Arctic Pole, outbreaks have occurred and the disease has flourished in most of Europe and North America. Europe's tourists to the New World have already found malaria firmly founded. Throughout the Little Ice Age, a time of severely cold winters and mild summers that started in 1564, malaria cases persisted in Europe. There are always mosquito vectors that bear the parasite in these temperate climates. Yet, malaria has almost disappeared from developing nations. Clearly, the explanation for the drastic decline in cases of malaria is not climatic. Rather, the shift is due to improved control measures for mosquitoes and more effective antimalarial measures. Sadly, mosquitoes have become alarmingly immune to control measures, and malaria that is drug-resistant is spreading. Cases of malaria have been on the increase. We should not depend on a measure of the past to provide us with a safe refuge in the future. In addition, in developing countries, the lack of malaria is partially maintained by the lack of human hosts infected. In rare cases, mosquitoes encounter an infected host and only rarely acquire the parasite.

DISCUSSION& CONCLUSION

Human diseases are closely associated with the global climate. Global warming has considerable potential to exacerbate selected infectious diseases by altering this environment. It is expected that climatic effects will include crowding, drought, water pollution, human migration, and vector ecology changes, all of which increase infectious diseases. With varying success, we have dealt with these issues in the past. Global warming would also result in economic stress that can divert public health resources from current resources with pathogens. We are able to mitigate the health effects of global warming by planning and analysis. We can reduce the environmental problems that cause global warming through policy, politics, and global cooperation.

REFERENCES

- [1] F. Drake, *Global warming*. 2014.
- [2] J. Houghton, "Global warming," *Reports on Progress in Physics*, 2005, doi: 10.1088/0034-4885/68/6/R02.
- [3] A. A. Khasnis and M. D. Nettleman, "Global warming and infectious disease," *Archives of Medical Research*. 2005, doi: 10.1016/j.arcmed.2005.03.041.
- [4] V. Gray, "The Cause of Global Warming," *Energy & Environment*, 2000, doi: 10.1260/0958305001500428.



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- [5] C. Foges and N. Young, "Green House Effect," *Architectural Record*, 2017.
- [6] and J. C. Hopwood, Nick, "Green House Gases and Society," 2009.
- [7] J. Hansen, M. Sato, R. Ruedy, K. Lo, D. W. Lea, and M. Medina-Elizade, "Global temperature change," *Proceedings of the National Academy of Sciences of the United States of America*, 2006, doi: 10.1073/pnas.0606291103.
- [8] S. Gundry, J. Wright, and R. Conroy, "A systematic review of the health outcomes related to household water quality in developing countries," *Journal of Water and Health*. 2004, doi: 10.2166/wh.2004.0001.
- [9] R. W. Sutherst, "Global Change and Human Vulnerability to Vector-Borne Diseases," *Clinical Microbiology Reviews*. 2004, doi: 10.1128/CMR.17.1.136-173.2004.
- [10] W. J. M. Martens, T. H. Jetten, and D. A. Focks, "Sensitivity of malaria, schistosomiasis and dengue to global warming," *Climatic Change*, 1997, doi: 10.1023/A:1005365413932.