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The COVID-19 - An Agent for Bioterrorism?

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Bioterrorism is a form of terrorism where there is intentional release of biological agent (bacteria, virus, fungi or other germs) to cause harm, illness or death of people, livestock and crops. It is an unlawful use of microorganisms to inflict various forms of harm/harmful incidence or injuries in humans, whole population and environment. There are reasons why this COVID-19 global pandemic appears to represent a deliberate act of Bioterrorism. This is occurring at a critical time in the worldwide especially in times of US presidential election cycle. It appears to be worse in males which have implications for military which might be seen as a biological weapon. This has created a market whiplash the large pullback in markets. COVID-19 represents a tremendous opportunity for investment and wealth redistribution like Swine flu pandemic in 2008-2009 when fortunes were made during that recovery.

Keywords: Bioterrorism; coronavirus; disasters; disease outbreaks; infection disease prevention/ control; panic and vaccination.

1. INTRODUCTION

The microorganisms are used as chemical agents in biological warfare, either in their normal state or denatured [1]. Bioterrorism, according to the US Centers for Disease Control and Prevention (CDC), is the intentional release of viruses, bacteria, poisons, or other infectious agents in order to cause infection or death in humans, livestock, or plants.

A wide range of agents have the ability to be used as biological terrorism weapons. Parasitic and zoonotic agents could be used to instill anxiety and paranoia in humans by being deliberately introduced into their food and water sources. Since the majority of bioterrorism hazard agents are microbes that cause zoonotic and parasitic disease outbreaks such as Bacillus anthracis, Yersinia pestis, Variola major, Francisella tularensis, some helminths, Ebola hemorrhagic fever (EHF), etc., detecting diseases in animals and humans can be critical in predicting a bioterrorism case. Coronavirus (COVID-19) has also been linked to bioterrorism as a zoonotic and parasitic agent [2].

With zoonotic and parasitic agent as the most likely infectious agent to be used by bioterrorist, humans and veterinary medicine can benefit from cross collaboration. There is therefore, urgent need to galvanize communication flow among medical and veterinary practitioners [3], researchers and policy makers in the case of an anticipation of bioterrorism zoonotic and parasitic escape or attack early enough to help and curtail of spread in any given human population or the world at large. Majority of the emerging infectious diseases including those caused by bioterrorist agents are zoonotic and parasitic.

These agents are usually present in nature, but they may be mutated or altered to improve their capacity to induce illness, render them immune to current treatment, or disperse into the atmosphere. Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS), Influenza, West Nile Disease, Severe Acute Respiratory Syndrome (SARS), Ebola Virus, Rabies, and other zoonotic diseases account for up to 70% of emerging infectious diseases [4]. SARS CoV-2, and most recently SARS CoV-1 (COVID-19). Bioterrorism may be preferred because biological agents are relatively easy and inexpensive to procure, can be quickly disseminated, and can induce mass fear and hysteria in addition to physical harm. Terrorists employ biological weapons mostly to cause widespread hysteria and destruction in a state or region. However, some scientists, such as "Bill Joy," have expressed concern about the possible control that genetic engineering might provide to future bioterrorists [5].

1.1 Sources of Bioterrorist Activities

a. State/Government Sponsored: The Departments of Health and Human Services (HHS), Federal Emergency Management Agency (FEMA), and Justice (DOJ) help state and local governments in improving their preparedness for bioterrorism and other forms of emergencies. The response to a biological agent, whether clandestine or visible, will usually start at the local level, with the federal government joining in if necessary. Ideological Extremist: This refers to an ideology that is considered to be far outside the main stream attitude of the society. This term is usually meant to be pejorative.

b. Religious Extremists: In recent years, religious extremism (the condition or standard of being extreme) has emerged as the primary cause of terrorism. Prior to 2000, most bombings were carried out by nationalist separatist militant organizations such as the IRA and Chechen rebels. In the years since religious nationalism has risen, the number of events by nationalist separationist movements has remained largely constant. Lone Wolves: Lone wolf attacks are a comparatively uncommon form of terrorist attack, although they are becoming more common. They may be inspired or inspired by the ideology and beliefs of an external entity, and they may operate in favor of such a group, which is referred to as a Sleeper cell. A lone wolf, in its original meaning, is an animal or human that prefers to live or spend time alone rather than in a pack. [6].

Types of Bioterrorist Attack

a. Attack not requiring an epidemiological method to detect.

b. Attacks requiring the use of epidemiological method to detect and to do so on time or much earlier.
c. Attacks requiring the use of epidemiological method to manage effectively [7].

1.2 CDC Bioterrorism Agents

Category A: Primary healthcare providers in the United States, as well as the public health system, must be prepared to cope with a wide range of biological agents, including pathogens that are seldom encountered anywhere in the world. Organisms known as high-priority agents are a national security concern because they can easily disseminate or disperse from person to person, cause high death rates, and have the potential to have a major public health effect.

• It necessitates extra public health preparedness initiatives and has the potential to cause widespread panic and civil unrest.

Such examples include anthrax (Bacillus anthracis), botulism (Clostridium botulinum toxin), plague (Yersinia pestis), smallpox (Variola major), tularemia (Francisella tularensis), and viral hemorrhagic fevers (filoviruses [Ebola, Marburg] and arenaviruses [Lassa, Machupo virus]).

Category B: Agents that disseminate moderately quickly are the second most important.

• • • necessitate specific changes to the CDC's prevention capability and improved outbreak control, resulting in low morbidity and mortality rates. Food safety threats (e.g., Salmonella species, E. coli O157:H7, Shigella), Glanders (Burkholderia mallei), Melioidosis (Burkholderia pseudomallei), Psittacosis (Chlamydia psittacosis (Rickettsia prowazekii), Alphaviruses (e.g., Venezuelan equine encepha (Examples include Vibrio cholerae and Cryptosporidium parvum).

Category C: Infectious diseases like the Nipah virus and Hantavirus are becoming more common. The third highest priority agents are emerging pathogens, which may be prepared for mass production in the future due to their availability, ease of handling, and dissemination.

• a substantial risk of morbidity and death, as well as a significant wellbeing effect [6,8].

1.3 Special: Agent Orange

During the Vietnam War, US military forces used Agent Orange as a herbicide to clear forest and crop cover. It was widely regarded as a bioterrorism agent during its use between 1961 and 1971. More than 2 million people died as a result of the toxic chemical poison, and infants are now born with deformities. Vietnam is now struggling as a result of this, much as Hiroshima is still suffering as a result of atomic bombings.

To achieve an edge in wars, bioterrorism agents are disguised as military vehicles. Is it possible that the government was unaware of Agent Orange's side effects? [9].

1.4 Economic Impact

- Should the Covid Scenario be intentionally released by the Chinese Government in order to crack down on the economies of other nations, especially India, so that China becomes the sole superpower in the world? We can't rule out this option because India is the only nation in Asia that poses a challenge to Chinese supremacy. Since India entered the Lockdown process last year, the economic impact of the Covid scenario has been visible. The growth of India's GDP is plummeting. Covid can be seen as a bioterrorism agent designed to ensure Chinese dominance. Isn't it strange that Covid, a Chinese business, recovered in less than 6 months when the rest of the planet has been struggling for the past two years? [10].

2. DISCUSSION

We never know anything that goes on when it comes to bioterrorism. However, the most reliable findings indicate that this modern coronavirus was not intentionally manipulated by humans, implying that it emerged naturally from nature. However, it's fair to believe that it all started with an unintentional leak of Covid19 from a virus-researching lab. Human actions are partly to blame in this situation. It's possible that we'll never know the whole thing. There is evidence to show that these institutions are working together to bring disease control and prevention in place. None of them have deemed Coronavirus a biological agent, but they have traced the virus's roots to a fish market in Wuhan, not a laboratory.

Is it possible that the virus originated in Canada, directly from the National Microbiology Laboratory of Canada? According to reports, a suspicious shipment of extremely lethal viruses from this Canadian lab ended up in China in March of 2019. Scientists said the viruses could be used as bioweapons, and months later, a group of Chinese virologists known as Chinese agents were expelled from the slab; did they smuggle the virus? Experts denied this argument once more!

WHO [11] The established coronavirus (COVID-19) is a zoonotic virus, according to phylogenetics studies that revealed the genome sequences of bats, which seem to be the virus's reservoir, though the intermediate host(s) has yet to be identified. Game animals, dogs, camels, cats, and other animals have been proposed as intermediate hosts [12], although this has yet to be proven, especially in light of the current COVID-19 pandemic situation. Many concerns about Coronavirus's biological weapon capacity remain unanswered [13-15].

An adequate understanding of such zoonotic parasitic agents is essential for having a knowledge base for better handling in cases of occurrence, especially full knowledge of how to handle such cases in clinical and hospital settings [16]. Although a limited amount of biological warfare agent dispersed properly will result in high mobility and mortality, which can be compounded by public and social damage, as is the case with the present coronavirus (COVID-19) pandemic.

2.1 The Need for New State Laws on Bioterrorism

The model act, in my view, has many flaws, including:

Proposed legislation should address real-world issues. Since it is unclear what dilemma the model act is supposed to solve, evaluating it is incredibly challenging. The model act's power to respond to a bioterrorist threat or a new pandemic is even broader, as it extends not only to true crises like smallpox, but also to non-emergency situations like annual influenza and the AIDS outbreak [17-18].

While putting public health officials in charge of responding to a smallpox attack might make sense, it may not be appropriate to place them in charge of responding to any kind of bioterrorist incident. The state public health department plays a critical role in reducing public exposure to bioterrorist agents in the event of an attack. Health personnel will, however, be in charge of recognizing affected people, registering them, handling them, and taking preventative measures. The primary responsibility of public health agencies would normally be to provide advice to the public and other government officials in detecting and coping with the outbreak, as it was in the aftermath of the anthrax attacks, and to provide testing laboratories where infection can be measured and conclusive diagnosis made. [19-21].

There is no suggestion that doctors, nurses, or members of the public are afraid to participate with the reaction to a bioterrorist threat or to take medications or vaccines prescribed by public health or medical authorities as a result of the September 18, 2001 Anthrax attack. The population queued to be screened for anthrax, and ciprofloxacin was stockpiled [22]. The CDC had to provide warnings against all monitoring and therapy due to the overwhelming public demand. Unlike smallpox, anthrax would not spread from person to person. Alternatively, if smallpox had been used as a bioterrorism agent, tens of thousands of people might have been poisoned with anthrax. Nonetheless, there is no indication that draconian quarantine provisions, such as those described in the model act, are either necessary or attractive. Smallpox patients, for example, are more contagious after a fever and rash have appeared [23]. They are normally so sick as a result of this that they can accept whatever treatment is available. Furthermore, according to Barbera et al., the “long incubation time (10–17 days) almost guarantees that certain people afflicted with smallpox may have traveled great distances from the site of infection before the illness is detected or quarantine can be implemented” [24th]. Identifying and assisting those who have been infected is critical to a successful public health response. While having an adequate stock of smallpox vaccine [23,25,26]. This is one of the main reasons for the recent suggestion that the smallpox vaccine be made freely available to the public. [26].

If a quarantine act is found to be effective in the case of a bioterrorist threat (e.g., to ensure that the remaining unwilling citizens are treated, vaccinated, or quarantined), it should be a federal requirement rather than a state law. This is because bioterrorism is a national security problem, not just a question of state police

powers. The original federal quarantine statute (with special provisions for cholera, pneumonia, smallpox, typhus, and yellow fever) is based on the Constitution's trade clause, and it can be reviewed and revised to comply with bioterrorism [27-28]. Bioterrorism is fundamentally a federal issue and quickly called for action from both the FBI and the CDC to deal with the situation [29-32].

3. CONCLUSION

Governments, infectious disease programs, and anti-terrorism organizations should prepare vaccines, medications, and consumables that may be used in the event of zoonotic and parasitic bioterrorism.

Regardless about how it started, it's important to remember that none of us regular people are to blame. And if the government had been accountable, we as people would not have been able to deter the acts. So, let's not point the finger at our immediate neighbours: Asians or other foreign neighbors are not to blame.

Frustration and anxiety are now at an all-time peak. However, lashing out at others is inconsiderate and unjust.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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