

Bioterrorism: An Overview

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I. INTRODUCTION

Biological warfare and bioterrorism are often used interchangeably. It is deliberate release of viruses and bacteria or agents (germs) used to cause illness or death of people. Terrorism of any kind is serious threat to the humanity. It is the result of suppression of some demands and desires of groups of people against the other group of people. It is against human rights, peace and development. For the particular objective, terrorist use violence during peace time to create havoc in the environment. Terrorism is objective based as nationalist uses terrorism for independence, religious groups used terrorism against other religion to supercede or out of superiority. revolutionaries use terrorism out of suppression for peace right and development, etc. So we can say terrorism is systematic use of terror and fear.

It is now well established throughout world, looking at global events of last two decades, that the capability to create immense panic and unimaginable fear has allured the terrorists for the effective use of biological agents to cause terror and attacks, fulfilling their aims and causes. This indicates that the threat of biological warfare is not myth, it is reality. These biological agents used as weapons cause large scale mortality and morbidity in large population targeted and create civil disruption in shortest possible time without bloody fights and conventional wars. It differs from chemical, radiological or nuclear wars. Bioterrorism imposes heavy demands or urgent obligation particularly on the nation's public health care system because it is ultimately the public which is devastated and targeted.

The public health sector is the only sector that can mitigate the consequences or after math of bioterrorism. The necessity is to mitigate it with international assistance and co operation as it is a huge International concern. The laws should be made in the favor of global public health with effective planning for prevention and control of

such emergencies. It needs collaboration between law enforcement and public health sector.

Historical Review :-

The use of bioterrorism in ancient time has been found in studies. During that time also there was tendency to affect the opponents health by using biological agents, thus it seems as old as human civilization and its war or struggles to expand its territories. They made weapon of naturally occurring agents out of dead and cadavers to infect others, as at that time the microbiology was not much developed to resist the disease and make medicines or antidotes.

The biological weapons are not only the concerns of modern era, hundreds of years ago humans have used infectious agents during wars. The reported examples given by historians reveals that, contagious diseases were recognized for their potential impact in the armies of enemy during 14th century B.C. They relate the sending of rams possibly infected with tularaemia by the hittilities to weaken the enemies. In the 4th century Greek historians Herodotus relates Scythian archers used to infect their arrows by dipping them into decomposing cadaver of vipers and human blood. In 1346 Mongolles hurled the bodies of plague victims over the walls of besieged city of Caffa (Ukraine), a Genovese outpost on the Black Sea coast. It was recognized that the bodies of the victims of infectious disease would become weapons themselves. They were ignorant of the potential and virulence, which caused by attacking army, its victims and many people died. The outbreak of plague followed sweeping through Europe, the East and North Africa, recording a major disaster to the public health. This plague epidemic is known as "Black Death". This disaster is still considered as powerful reminder of the terrible consequences of using diseased agents in war terrorizing weapons of death. Being introduced in the American continent, small pox was used by the confederate as effective biological weapons against the union during U.S civil war period.

On numerous occasions during the past 2000 years the use of biological agents, against the enemy has been found in historical recording, mentioned in the table below :-

Examples of biological war, using disease agents in war before microbiological era:-

- 14th Century BC – The Hittites send rams infected with tuleraenia into armies of enemies .
- 4th Century BC -- Synthian archers infect their arrows by dipping them into decomposing vipers and human blood .
- 1155 –Barbarossa poisons water wells with dead human bodies .
- 1346 – Mongols hurdlebodies of plague victims over the walls of besieged city of Caffa.
- 1495 – Spanish mix wine with the blood of leprosy patients to sell to their French foes in Italy .
- 1710 – Russian troops catapults humans bodies of plague victims into the Swedish cities , in Revel (Estonia).
- 1763 – British officers distribute infected blankets from smallpox hospitals or victims to native American.
- 1797 – Napoleon floods the plains around Mantua (Italy).
- 1863 – Confederatessold clothes from yellow fever and smallpox patients to union troops during U.S civil war .

As a whole analysis, it became difficult for historians in differentiating between naturally occurring epidemic from attempt or alleged biological agents attack as a weapon.

In the advent of modern microbiology at the end of of 19th century the use of biological weapon became more sophisticated. It marks the major turning point in history of biological weapons, as Louis Pasteur and Robert Koch advances in theoretical understanding of microbiological methods.

This made possible the isolation and production of stocks of number of specific pathogens as well as in majority of cases controlling thier spread.

During world war I

Germany used Biological agent by inoculating diseases producing bacteria such as Bacillus anthracis (anthrax) and Glanders in the horses, shipped to the U.S.A and other countries. Same agents were used to infect Romanian sheep that were exported to Russia .

Due to the havoc created by horror of chemical warfare, the international diplomats started their effortstowards limiting the proliferation and use of mass disruptive chemical and biological weapons.

On 17 June 1925 the “Protocol for the prohibition of the use in war of Anthrax, poisonous gases and other agents in the Warfare” was prohibited , this was commonly called the Geneva Protocol of 1925. A total of 108 Nations including five permanent members of United Nations Security Council signed the agreement as this protocol did not address verification or compliance, proved it to be meaningless, because several parties countries began to develop biological weapons soon after its ratification, as this protocol did not address verification or compliance proved it to be meaningless because several parties countries began to develop biological weapons soon after its ratification ie Belgium Canada France Great Britain Italy and Soviet Union ,etc.

The eminent biophysicist StevenBlock pointed out clearly that although the disease has been eliminated in the wild frozen stocks of smallpox virus are still maintained by the government of USA and Russia, the consequences could be disastrous. In his opinion- We are tempted to say that nobody in their right mind would never use this thing but not everybody is in their right mind.

It approved logically that Dead terrorist threat is not only real but is going to be worse in further years to the generations to come . The powerful countries know the threat of biological weapons ,reasons and uses, they are more ambitious to make bio defences for preventing the spread of agents or to resist it in further spreading.

The horror and terror is likely to aggravate with “Black Biology”- it is the shadowy science in which microorganisms are genetically engineered for creating a noval weapon terror . this technology can be used to insert Genes into the DNA for the good or bad purpose .

Purpose is the most effective word,that depends upon the attitude , target ,behaviour and reasons behind the use of harmful substances .The countries like USA Japan, USSR and Great Britain were secretly involved in research programs developing the anthrax and other biological weapons.

During world war II

Japan used biological agents against Chinese prisoners by subjecting them to experimental doses of anthrax, cholera and other pathogens, which was against the humanitarian

rights. No charges were alleged against the Germany regarding the experimentation with biological agents. On the other hand German officials accused the allies of using same against it. As the Japanese personnel were not adequately prepared, trained or equipped for the hazards of biological weapons, 1700 deaths were reported in Japanese troops in 1941. During the Korean War the Soviet Union, China and North Korea accused the USA of using agents of biological Warfare against North Korea. In later years the USA admitted that it had the capability of producing such weapons, although it denied of using them.

The Biological Weapons Convention of 1925 prohibited the use of biological weapons, but not their Research and production. However the credibility of the USA, France and others were undermined which began their own research programme until 1975. Under the pressure of WHO the new convention on the Prohibition of the development, production and stock piling of bacteriological and toxin weapons and on all their destruction (BWC) signed in 1972 by USA, UK and Soviet Government and other nations which came into force in 1975. It has been continuously reviewed. It is Prohibits –

- The possession of biological agents except for prophylactic, protective or other peaceful purposes.
- The development of Technologies intended for the dispersal of biological agents for offensive military purposes.
- The destruction of exciting strokes.

Prevention

To strengthen the area of biodefense out of sense of being victim, to its successful meetings were held on challenges of bioterrorism, the US Senate passed “Bio terrorism Act of 2002”. According to this act there is an essential element of national preparedness against bioterrorism and focus is on safety of drugs, food and water from biological agents and toxins.

In India, The Integrated Disease Surveillance (IDSP), a decentralized and state based surveillance program was introduced in November 2004. It integrates public sector and private sector rural and urban health system. There is also incorporation of government medical colleges (GMC) as well as Private Medical Colleges and International Health Agencies (WHO, CDC, NIC, etc).

Its functions include-

- Integration and decentralization of surveillance activities.
- Strengthening of Public Health Laboratories.

- Human resource development.
- Use of information technology for collection collation, compilation, analysis and dissemination of data.

During fiscal year 2002 the Clinton administration allocated \$ 1.4 billion to combat both biological and chemical Warfare. It was good effort but still needed serious steps towards anti-terrorist intelligence effort and for developing the capability of emergency response, which demands hi tech devices capable of detecting lithal bacteria and viruses in the environment, with a strong public health care system. Some serious public health events that endangers the public health may be determined under the regulations to be Public Health Emergency of International Concern (PHEIC). The term Public Health emergency of international concern is defined in IHR(2005), as an extraordinary event which is determined

- To constitutes a public health risk to other states through International spread of disease.
- To potentially require a coordinated International reresponse. It implies that the situation is serious unexpected, unusual carries implications for public health beyond the affected States, national water and may require immediate International action.

Temporary recommendations include health measures to be implemented by the state party experiencing (PHEIC) to prevent or reduce the international spread of disease and avoid unnecessary interference with international traffic.

II. CONCLUSION:

In spite of advances in scientific research on microbiology, genetics and medicines, since ancient times, definite conclusions are difficult to draw regarding the attacks in the history of humankind. The increasing terror of terrorism and the risk posed by various development and enhancement, posed even greater threat to the people than the conventional Wars. It is proved to be menace is that has no boundaries, humanity, culture and sensitivity. The WBC came into force prohibiting the use of biological weapons, but not Research and prproduction. Again in 1975 Biological and Toxin Weapons Convention (BTWC) was ratified by hundreds of nations including USA, aiming to end the development and stockpiling of same. The biological weapons is not only a thing of past but also remains a serious concern at local and global level. The question arises whether in the present context human life is safe? or the scientific researches has raised the

question on security of life to what extent?. Another important question is -what are the ways of preventing or resisting the threats or emergency raised due to biological attacks ?.

Still the effective prevention measures not only rests on preventive measures to end the development and stockpiling of BW's but also on the norms of social, political and individual ideals, which is the base of human life.

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