УДК 61:615.1(062)(476-25)
ББК 52я73
А 43
ISBN 978-985-21-1258-1

Venkatesan S., Rathod J.

BIOLOGICAL WEAPONS FROM HISTORY TO MODERN THREATS

Tutors: PhD, associate prof. Fedorova I.V.,
senior lecturer Lebedev S.M.
Department of Military Epidemiology and Military Hygiene,
Department of Epidemiology
Belarusian State Medical University, Minsk

The World Health Organization defines biological weapons as microorganisms, such as bacteria, viruses, and other toxins that are intentionally produced and used to cause disease and death in humans, animals and plants. Attempts to deliberately use microorganisms and toxins as weapons have been made throughout history. Biological warfare has evolved from the use of corpses to infect water sources to the development of specialized biological destruction devices (capsules, bullets, shells, cassettes, aerial bombs, aerosol generators). The modern development of biological agents as weapons went hand in hand with advances in fundamental and applied microbiology. The Japanese developed biological weapons from 1932 until the end of World War II and tried to release 15 million fleas infected with the plague, but these efforts backfired and resulted in 10,000 biological victims and 1,700 deaths among Japanese military personnel.

At the present stage of the development of the international situation, the following are considered by experts as the main biological hazards: changes in viral properties and forms of pathogens, as well as habitats of their vectors; the ability of pathogens to overcome interspecific barriers; the emergence and spread of new infections, the introduction and spread of rare infectious and parasitic diseases; occurrence and spread of natural focal, recurrent infections; design and creation of pathogens using synthetic biology technologies; the spread of infections related to the provision of medical care and infections related to the implementation of veterinary activities; the occurrence of accidents, the implementation of terrorist acts and sabotage on dangerous biological objects; spread of resistant pathogens; increase in the frequency and severity of infectious diseases caused by opportunistic microorganisms.

In modern conditions of warfare, the sabotage method is the main method of carrying out a biological terrorist act. With the help of small-sized sabotage equipment, it is possible at some point to carry out air and water contamination in the places of deployment of military personnel. Patents are being developed and issued for technical means of delivering unmanned aerial vehicles with the possibility of equipping the latter with systems and mechanisms for spraying aerosols with a capacity of more than 20 liters, which creates a real threat of large-scale use of pathogens in any territory. Advances in biotechnology facilitate the manipulation of pathogens and increase their virulence, transmission ability or resistance to medical countermeasures. The convergence of biotechnologies with other objects can also increase the risk of a highly developed targeted biological attack.

Among biologically dangerous objects, experts distinguish a network of biological laboratories located in the territories of post–soviet countries - in Ukraine, Armenia, Azerbaijan, Georgia, Kazakhstan, Uzbekistan, Moldova. The creation and operation of laboratories were carried out through assistance programs: «Joint Threat Reduction», «Global Partnership for the Nonproliferation of Weapons of Mass Destruction». The activity of laboratories is carried out in strict secrecy, external control over scientific research is not possible.

Thus, military biological research and the possible consequences of using their results pose a real threat to the population and military personnel and are one of the most powerful challenges to the military security of our state over the past 20 years. Biological threats determine the importance of considering issues of biological protection of troops. In the current conditions, priority attention should be paid to the development of modern specialized scientific and methodological approaches to the assessment, prediction of the biological situation and improvement of biological protection.