

For October 23, 2001

Heart to Heart Talk

With Philip S. Chua, M.D.

Anthrax and bio-terrorism

What is Anthrax?

Anthrax, also known as Wool Sorter's disease, is a virulent infectious disease of animals (mostly farm animals, especially ruminants, like sheep, horses, cattle, swine and goats) transmitted to humans by contact with the animals or their products, or ingestion of contaminated meat. Rarely seen in the United States, Anthrax still exists in the Middle East, Asia and Africa. Although human infection is rare, it is an occupational illness of farm worker, tannery and wool workers and veterinarians. The incubation period (from the time of exposure to the infection to the appearance of the symptoms) varies from 12 hours to 3 to 5 days.

Why is Anthrax being linked to bio-terrorism?

Bacillus anthracis is the bacterium that causes anthrax. It produces spores that resist destruction and can remain viable in soil and animal products (wool blankets, sheep skins, etc) for decades. The incubation period is short and the disability from anthrax is severe. Because of all these attributes, experimentation with anthrax as a biological weapon has been very common. Currently, less than a dozen cases of this rare disease have been reported in the United States, and suspicions abound that terrorist Osama bin Laden and his group may be resorting to this type of bio-terrorism against the United States and its allies. Investigation is going on to determine if these cases resulted from an act of terrorism or not.

What are the forms of anthrax?

There are three forms: (1) Cutaneous (skin), where the infection is acquired through a break in the skin; (2) Pulmonary (lungs), where the transmission is by inhalation of the spores; and, (3) Gastrointestinal (foodpipe), where the infection was caused by eating contaminated meat. The cutaneous form starts with a mosquito bite-like skin bump, commonly on the hand, that turns into a painless open sore with a black center. Following development of the cutaneous form, dead tissues and crusts fall off from the skin, and the infection may spread through blood circulation, causing sweating, cyanosis (blueness), shock and collapse. If caught early, most of this form can be treated successfully. About 20% of untreated cases die. This happens in 1 out of 100,000 people. In the Pulmonary form, pneumonia

sets in and cause respiratory distress followed by death. Without treatment, this form is uniformly fatal. The incidence of this pulmonary (inhalation anthrax) is very rare and it is not contagious. The Gastrointestinal form begins with loss of appetite, fever, nausea and vomiting, and severe diarrhea. This is fatal in 25%-60% of cases but is extremely rare in humans. Meningitis (inflammation of the covering of the brain) may also develop. Although anthrax is a significant animal illness, it is rare in humans, especially in countries that practice strict preventive industrial and agricultural programs.

Is Cipro good against anthrax?

Ciprofloxacin hydrochloride, marketed as Cipro by Bayer, was very recently approved by U.S. regulators as a new first-line defense against anthrax. This is the first antimicrobial drug approved by the FDA specifically for use against an indication (for a disease like anthrax) that could result from the intentional use of a biological agent by terrorists. People in the United States have been discouraged from hoarding Cipro pills, since the US Department of Health and Human Services is spending \$278 million this year on preparations for bioterrorism, which includes stockpiling of Cipro. This drug has been found in animal studies to be very effective against anthrax, especially the pulmonary or inhaled form. Other drugs for anthrax include Penicillin, Tetracycline, Erythromycin, but Cipro appears to be the choice.

Is anthrax vaccine for humans available?

Yes, but it is available only for military personnel deployed to areas with a high threat of a biological warfare. Farm animals are regularly vaccinated against anthrax but the vaccine for animals should never be used for humans. The human anthrax vaccine boosts the immune system and 93% effective, but it is not available for use by the general public. Immunization is not immediate. The required schedule calls for 3 shots given two weeks apart, 3 more given 6, 12, 18 months later, then annual booster shots thereafter.

Is anthrax transmitted man to man?

No, anthrax is not contagious in the sense that it is not transmitted from one person to another. While it is quite difficult for terrorists to mass produce and “deliver” this form of biological warfare, we must nonetheless be vigilant and on guard at all times.

How about small pox?

Small pox, which is very contagious and had killed millions and millions before it was wiped out from earth in 1980, is another disease that could be used for bio-terrorism. In the United States, the last vaccination for small pox was given in

1972, so the population is today vulnerable. The United States had contracted with a private firm to manufacture 40 million doses of the vaccine against smallpox to protect the population should the need arise.

What about contaminating our water supply?

Contaminating our water supply with bacteria or poison is another form of bioterrorism. Obviously, the people depend on the governmental agencies tasked with the responsibilities of protecting our water supply. Being extra careful and being ever-vigilant in our respective community for any suspicious character or activity (and reporting same to the authorities) is one way of helping thwart terrorism.

What precaution can the public take?

It is really hard for any country or community to be terrorist-proof. The September 11, 2001 attacks on the World Trade Center twin towers proves that. All we can do as individuals is to be cautious and alert for letters, packages, canisters, sprays, that are delivered to us unsolicited. The FBI is currently investigating confirmed cases of anthrax in the United States (Florida, New York City, Reno), who had reportedly received letters “with a powder inside, supposedly infected material.” Presently, on the internet, there is a warning advising people to stay out of shopping malls on Halloween, October 31st. It would not hurt to be careful, but let us be sensible, and let us not unreasonably disrupt our lives and our routine. Above all, let us not panic. Let us watch the news, read the newspapers, etc. to be abreast with the latest development. And as always, let us pray as a people and as a nation.

Please add usual footnotes. Thanks.