Oncology Nursing Implications Related to Smallpox Bioterrorism Preparations

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Although smallpox was globally eradicated in 1977, the current threat of smallpox as a bioterrorism agent is unknown. Based on intelligence reports, the U.S. government and public health sectors have recommended smallpox vaccination for very select individuals. Patients with cancer are at particular risk for complications from the smallpox vaccine because of potential immunosuppression. Vaccinated nurses caring for these patients also need to take special precautions because of the possibility of secondary transmission of this live vaccine to patients. This article reviews background information on bioterrorism, the presentation and clinical features of smallpox, contraindications to the smallpox vaccine, and implications for oncology nurses.

Key Words: bioterrorism, smallpox, variola virus, smallpox vaccine

Since the fall of the communist government in the Soviet Union, intelligence agencies have had concerns that knowledge of virulent manipulation and, possibly, samples of the virus itself have been sold on the black market to individuals with terrorist intentions (Alibek, 1999).

Smallpox: The Disease

Smallpox is a viral illness. Historically, it had a seasonal pattern similar to that of chicken pox or the measles, with peak incidences in winter and early spring. Through natural epidemics, it has claimed more lives than any other infectious illness, more than 500 millions deaths in the 20th century alone (CDC, 2003c).

Smallpox is a highly contagious and potentially deadly disease. Estimates suggest that it has a disease multiplier of 10–20 (i.e., each person who develops the illness will infect another 10–20 people) (Henderson et al., 1999). Therefore, if 10 people developed smallpox, within a period of two to three weeks (the natural incubation period), an additional 100–200 people who were exposed to the original 10 would develop smallpox. In another few weeks, the number would be 1,000–4,000, and so forth. The numbers of potentially contagious people would become unmanageable very quickly.