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Study documents what may be first cases of certain tick-borne disease in China

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It appears that for the first time human granulocytic anaplasmosis (HGA), an emerging tick-borne infectious disease found in the U.S. and Europe, has been identified in China and apparently was transmitted from person to person, according to a study in the November 19 issue of *JAMA*.

HGA was recognized in the United States in 1990 and in Europe in 1997, with the annual number of infections reported in the U.S. steadily increasing. Data suggests that infection rates in endemic areas are as high as 15 percent to 36 percent, implying that the diagnosis is often missed or that infection is mild or asymptomatic, according to background information in the article. "Because epidemiological, clinical, and microbiological information about HGA is limited, the disease is likely underrecognized and underreported worldwide," the authors write.

Lijuan Zhang, M.D., Ph.D., of the National Institute of Communicable Disease Control and Prevention, China CDC, Beijing, and colleagues conducted a study to determine the origin and transmission of the apparent first cases of HGA acquired in China, as well as the first finding of human-to-human transmission. A cluster of cases among health care workers and family members following exposure to a patient with disease symptoms consistent with HGA prompted the investigation. Subsequent questioning of the patient's family revealed that she was bitten by a tick 12 days before onset of fever.

After exposure to the index patient (initial person with symptoms), whose fatal illness was characterized by fever and hemorrhage at a primary care hospital and regional tertiary care hospital's isolation ward, secondary cases (health care workers and family members) with fever who were suspected of being exposed were tested for antibodies against the bacteria Anaplasma phagocytophilum. Potential sources of exposure were investigated.

In a regional hospital of Anhui Province, China, between November 9 and 17, 2006, a cluster of nine patients with fever and other symptoms were diagnosed with HGA. No patients had tick bites. All nine patients had contact with the index patient within 12 hours of her death from suspected fatal HGA while she experienced extensive hemorrhage and underwent endotracheal intubation (the placement of a flexible plastic tube into the trachea for the purpose of ventilating the lungs). The patients indicated they were unlikely to have used gloves or wash after contact with the index patient.

Among the 28 individuals who reported close contact (20 inches or less) with the index patient during the final 12 hours of her life, nine were infected. The index patient was exposed to 20 contacts for more than 2 hours, and nine were infected. All nine infected patients reported contact with blood and seven had contact with respiratory secretions. Those persons with skin exposure to blood or respiratory secretions, or those with pre-existing skin lesions or injuries followed by exposure to blood were significantly more likely to be infected.

"The most remarkable aspect of these cases was that transmission was very unlikely to be tick-borne, but was closely associated with blood or respiratory secretion exposure from an index patient who died of a [sudden and severe] illness with hemorrhage," the authors write.

"Although it is likely that routine blood and body fluid precautions will

protect against such future events, strict adherence to protective protocols is mandatory even if communicability is deemed unlikely. The lessons of this study remain relevant to the daily hospital and health care unit operations to prevent any additional [hospital] outbreaks of HGA. Moreover, as China advances into its future, it must also now become prepared to deal with the increasing threat that tick-borne rickettsial pathogens [parasitic bacteria that live in anthropods (as ticks and mites) and can cause disease if transmitted to human beings] have been already brought to the United States and Europe."

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