Medical Xpress

Nationwide spread of Lyme disease is focus of new study

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(PhysOrg.com) -- Lyme disease has become a major public health issue in the northeastern United States since it was first identified in Connecticut in the 1970s. But the scientific community is uncertain as to why the risk of Lyme disease is so much higher in the northern part of the country than elsewhere.

To examine the reasons for the unexpected geographic distribution of the disease, the National Science Foundation has awarded a four-year, $2.5 million grant to scientists from a consortium of five universities including the University of Rhode Island.

“These ticks are on the move,” says Dr. Jean Tsao of Michigan State University, who will lead the study. “As ticks expand into new areas, more people will likely become infected.”

Findings from this study will help public health agencies develop better prevention strategies for Lyme disease, which the Centers for Disease Control and Prevention reports infects more than 20,000 people in North America each year.

Lyme disease is a bacterial infection spread by the bite of blacklegged ticks, also called deer ticks. These ticks occur in both northern and southern states, however 93% of all Lyme disease cases occur in ten northern states, including Rhode Island. Researchers and public health providers are puzzled by the relatively low number of human cases in the South.

The researchers plan to study ecological and disease factors affecting the Lyme disease cycle by applying standardized survey methods at twelve sites in states ranging from Georgia to Massachusetts. "Lyme disease is a major public health problem, and the reasons for its changing geographical distribution raise serious questions," said Howard Ginsberg, a research ecologist for the U.S. Geological Survey and professor-in-residence at URI. "The questions are medical, but the answers are ecological. The knowledge to be gained from this project will help us better predict the future distribution of this disease, and lower the risk to human health."

A number of hypotheses have been put forward to explain why the disease agent is rare in southern tick populations. "Some scientists think that the tick's lifecycle differs in the southern climate in ways that interfere with disease transmission," said URI Entomology Professor Roger LeBrun. "Others point to the abundance of lizards in the south. The ticks love the lizards, but many of them are unsuitable hosts for the Lyme bacteria. Furthermore, southern ticks differ genetically from their northern cousins. Any of these factors might contribute to disease distribution, but it will take a lot of work to sort them out."

Ginsberg and LeBrun have been studying the diseases transmitted by ticks, mosquitoes and other vectors for more than 30 years, including a collaboration on a survey of mosquitoes in national parks in the northeastern U.S. In recent years, LeBrun has been studying fungi and other tick pathogens, while Ginsberg consults on the management of vector-borne diseases in national parks.

Provided by University of Rhode Island (news : web)

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