3f. Ticks & tick-borne diseases

The prevalence of ticks carrying the agents of **Lyme Disease** and **ehrlichiosis** may be higher in Santa Cruz County than other areas of California. A two-year study by biologists at San Jose State University found infection rates for these agents ranging from 5 to 6 percent among western black-legged ticks (*Ixodes pacificus*) and American dog ticks (*Dermacentor variabilis*) in Santa Cruz County. This is higher than the 1 to 2 percent previously estimated.

We know that many people in Santa Cruz County work and play in areas where the risk of tick exposure is high. Yet, reports of human Lyme Disease and ehrlichiosis among county residents are uncommon, less than 5 per year. It is unclear if the number of reported cases accurately reflects the prevalence of tick-borne disease in the county.

Symptoms of Lyme Disease

Untreated, Lyme Disease symptoms become more severe over time. One to two weeks after infection, many to most people will exhibit **erythema migrans** (**EM**), a red, expanding rash radiating from the attachment site.

Other signs of early Lyme Disease may be mild and non-specific, or present as flu-like symptoms of fever, malaise, fatigue, headache, muscle and joint aches.

Late manifestations of Lyme Disease can occur days, weeks, or months after the appearance of the first EM lesion. Late disease affects the:

- **musculoskeletal system**, manifesting as migratory joint and muscle pain with or without obvious swelling
- **nervous system**, manifesting as meningitis, cranial neuropathy, and encephalopathy
- **cardiovascular system**, seen as myocarditis or acute onset of atrioventricular blocks of varying degrees.

See next page for discussion of ***Ehrlichiosis***

Western black legged tick, responsible for carrying Lyme Disease in the Western US.

Lab testing for Lyme Disease:

Perform antibody testing using this two-step procedure:

1. Initial test with ELISA or IFA.

2. Follow any positive or equivocal results with an IgM and IgG Western Blot.

Timing is everything!

Patients may be seronegative if tested within the first 1-2 weeks after infection. Western Blot IgM titers are detectable 2 weeks after infection, peak at 3-6 weeks, and rapidly abate. IgG titers become detectable at 3-4 weeks, peaking at 6-8 weeks and persist 3 years or more. Sero-reactivity alone is not a marker of active disease.

PCR testing of skin, blood, CSF and synovial fluid is not standardized for routine diagnosis of Lyme Disease. Isolation of the Lyme Disease bacterium from early EM lesions requires special media. Consult with our Disease Control Unit regarding the availability of this method for diagnosis.

Untreated, Lyme Disease symptoms become more severe over time.

Phone, fax, or mail within 1 week

454-4114

454-5049 fax

Disease Control Unit

SCC Health Services Agency
1060 Emeline Avenue, Bldg. F
Santa Cruz CA 95060

... if you diagnose or suspect Lyme Disease or ehrlichiosis.

Treatments for Lyme Disease

Doxycycline (100 mg twice daily) or amoxicillin (500 mg 3 times daily) for 14-21 days is recommended for treatment of early localized or early disseminated Lyme Disease associated with erythema migrans, in the absence of neurological involvement or third-degree atrioventricular heart block. Doxycycline is relatively contraindicated during pregnancy or lactation and for children aged <8 years.

Cefuroxime axetil (500 mg orally twice daily) is as effective as doxycycline in the treatment of erythema migrans and should be reserved as an alternative agent for those patients who can take neither doxycycline nor amoxicillin.

For children, amoxicillin (50 mg/kg/d, divided into 3 doses per day, maximum 500 mg/dose), or doxycycline for those aged ≥8 years (1-2 mg/kg twice per day, maximum 100 mg/dose). Cefuroxime axetil (30 mg/kg/d, divided into 2 doses daily, maximum 500 mg/dose) is an acceptable alternative.

Tick Testing Services

If your patient has removed a tick, it can be submitted to our Public Health Lab for free identification. If the tick is determined to be of a species capable of transmitting Lyme Disease, it can be forwarded to a regional lab to be tested for a modest fee.

The tick will only be evaluated for the agent that causes Lyme Disease; there is currently no routine testing of ticks for ehrlichiosis.