

Tick-Borne Infections

Tick-Borne Infections in Europe

There is an increasing trend for both tick borne infection in Europe with a large increase in tick population in rural and deer frequented areas in Britain. Milder winters and warmer summers may be implicated.

TICK RELATED DISEASES

- Tick-borne encephalitis (TBE)
- Lyme borreliosis (LB)
- Tick-borne relapsing fever
- Tick-borne rickettsiosis
 - African tick-bite fever
 - Mediterranean spotted fever
 - Rocky Mountain spotted fever
- Ehrlichiosis and anaplasmosis
- Tularemia
- Babesiosis

Risk considerations for LB and TBE in travellers

Travel destination

- Huge variation in endemicity between countries and major variations within countries in particular
- TBE is a very focal disease

Approximate number of reported TBE cases in European countries

Czech Republic	600
Latvia +	400
Lithuania	400
Germany It	300
Estonia	200
Hungary	200
Slovenia	200
Sweden K	150
Poland	150
Switzerland R	100
Slovakia	75
Austria 4>	75
Finland R	20-40
Italy R	10
Norway	0-5
Denmark	5

Infectious Statistics

Most estimates are based on risk figures in endemic populations and extrapolated to travellers assuming that travellers and local populations share the same risk behaviour. There is plenty of room for pitfalls and confounding factors when estimating risks in travellers.

Seasonal variation in risk

TBE and Seasonal Morbidity

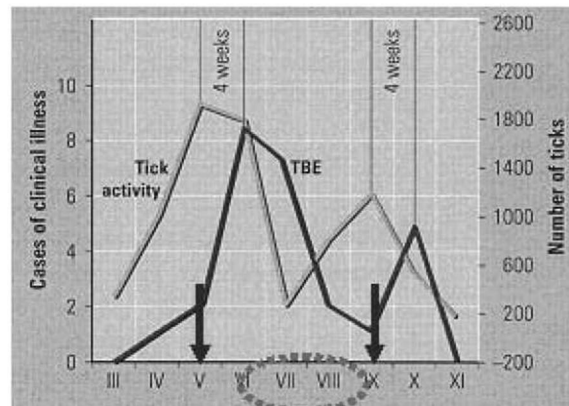
Northern Europe: One peak seasonality with a peak in August Most infections occur during vacation months July & August)

Central Europe: Two peak seasonality with peaks in June & October and lower incidence in August-September (where the reduced risk is not compensated by the increased exposure).

Reduced risk for travellers during the hot summer months.

Climate variables influence tick activity/ abundance and incidence rates of LB and TBE

- Increased monthly mean temperature over time
- Increased monthly mean precipitation
- Increased number of days relative humidity above >86%
- Increased number of cold winter days (<0°C)



Personal Prophylactic Measures

1 "Avoid tick infested areas"

2 "Wear well fitting protective clothing covering major parts of body", eg. Long trousers tucked into the boots and long armed shirts

3 Rapid removal of the tick within 24-48 hours avoids most LB but not TBE

4 Frequent inspections of the body

- The only way to discover and remove attached ticks
- Inspections may also discover non-attached ticks since ticks may take several hours before attachment

Use of repellents on exposed skin:

DEET 15-35% or KBR 3023 (Byrepel/Autan)

Only 1-2 hour effect duration. Severe limitations in efficacy since ticks can wander around in clothing and crawl underneath the clothing and bite unprotected skin

On clothing:

- Permethrin spray
 - Knock down effect
 - Complementary to skin application of repellents

Is there any evidence that personal prophylactic measures reduce morbidity?

A reduced risk for LB in the US in two low-powered case-control studies of early tick removal.

Studies have shown that *early tick removal and regular body tick check* are methods most likely to be accepted by people.

Sources:

Mogens Jensenius et al. Travel medicine and Infectious Diseases (2006)4, 4-13 By Lars Lindquist, an edited version of a presentation on Tickborne infection in Europe. NECTM Conference, June 2006 Edinburgh.