SPREADING OF BLOOD SUCKING ARTHROPODS (INSECTA DIPTERA: CULICIDAE, SIMULIIDAE; ACARINA: IXODIDAE) IN LITHUANIA

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Abstract - Observation carried out in increase in the number of all blood-sucking arthropods in Lithuania. The abundance of *Ixodes ricinus* ticks, the principal vector for the Lyme disease and Tick-borne encephalitis (TBE) agents in three biggest towns of Lithuania was compared with the incidence of morbidity of Lyme disease and TBE. The data received are used to organize preventive activities against infectious diseases transmitted by arthropods.
Key words - *Anopheles maculipennis, Borrelia burgdorferi, Byssodon maculatus, Ixodes ricinus,* tick-borne encephalitis

During the last year 31 species of mosquitoes have been found in the Lithuania. The species occurred in towns are: *Aedes annulipes* (Mg)., *A. behningi* (Mart.), *A. cantans* (Mg.), *A. caspius* (Pallas), *A. cataphylla* (Dyar), *A. cinereus* (Mg.), *A. communis* (De Geer), *A. cyprius* (Ludl.), *A. diantaeus* (H.,D.&K.), *A. geniculatus* (Oliv.), *A. intrudens* (Dyar), *A. leucomelas* (Mg.), *A. nigripes* (Ztt.), *A. pullatus* (Coq.), *A. punctor* (Kirby), *A. riparius* (D.&K.), *A. rusticus* (Rossi), *A. vexans* (Mg.), *Anopheles maculipennis* (Mg.),*Culex pipiens* (L.), *Culiseta alaskaensis* (Ludl.), *C. ochroptera* (Peus). The most active species attacking humans are *A. communis, A. cantans, A. punctor, A. cataphylla*. About 36% of all permanent water bodies in towns are anophelogenic and *An. maculipennis* species dominate there. The most abundance of larvae *An. maculipennis* was detected in July.

The best known family among small blood sucking flies is the Simuliidae. For almost a 10 years we can observe an increase in blackflies in the southeastern part of Lithuania. The main blood-sucking blackfly is *Byssodon maculatus* (Meigen). Larvae and pupae of *B. maculatus* can be found only in the Nemunas and it made 95 % of all the larvae in June (1997). *B. maculatus* passes winter in egg-stage, has one generation and the adults exist until the end of June in Lithuania.

Lyme disease and TBE are the most frequently reported vector-borne illness in the Lithuania. Since surveillance for Lyme disease was begun by the Centres for Communicable Disease Prevention and Control in 1991, the number of human cases has increased in 1997 and 1998, with rates of 1.6, 44.8 and per 100,000 people, respectively. Similar situation is with TBE (Fig.1). Since 1990 the drastic increase of morbidity has been recorded with the maximum of 17.4 in 1997. The principal vectors of the both infections are *Ix. ricinus.* The increase in reported cases may also display a change in tick abundance. The number of *Ix. ricinus* registered in stationary observation is annually growing: number of ticks per 1 kilometre of route on flag has increased from 20 in 1992 up to 35 in 1997. The usual period of *Ix. ricinus* activity is from April to November. In the biggest towns at the observance sites of ticks the maximum of their spring activity in the middle of May (1998) exceeded all in the previous years-registered rate of tick number (Fig. 2). The maximum of autumn activity is registered in the second part of August and is less expressed.

The infection rate of the *Ix. ricinus* ticks by *B. burgdorferi* during the 2-year period of this study was 9%, ranging from 4% to 24% in different places. Virus of TBE was isolated from ticks collected in three urban parks.

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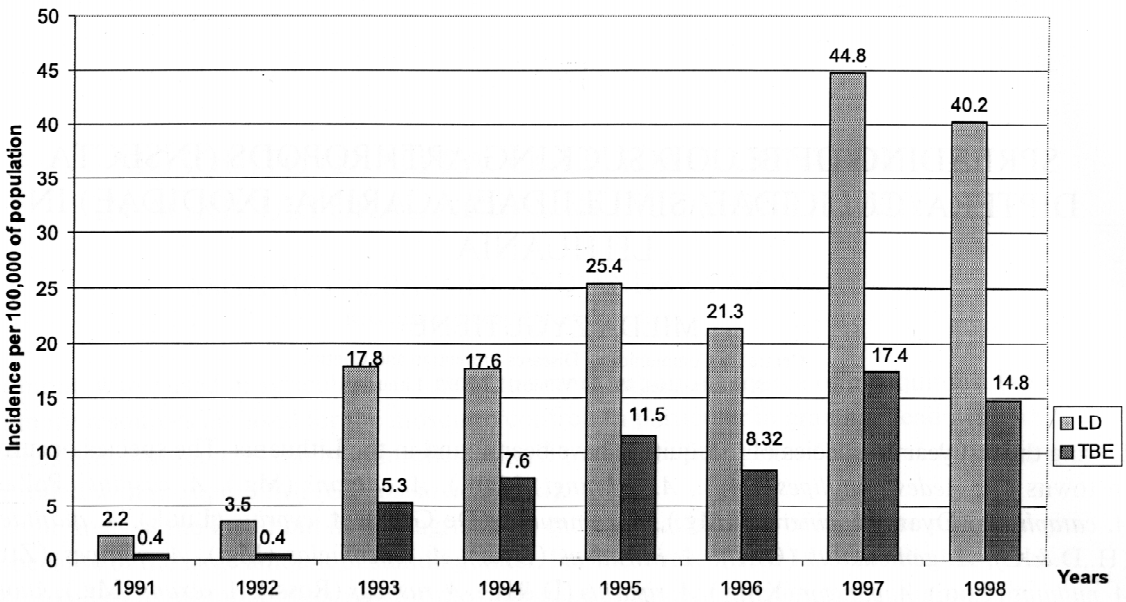

Figure 1. Morbidity of Lyme disease and Tick - borne encephalitis in Lithuania 1991 - 1998.

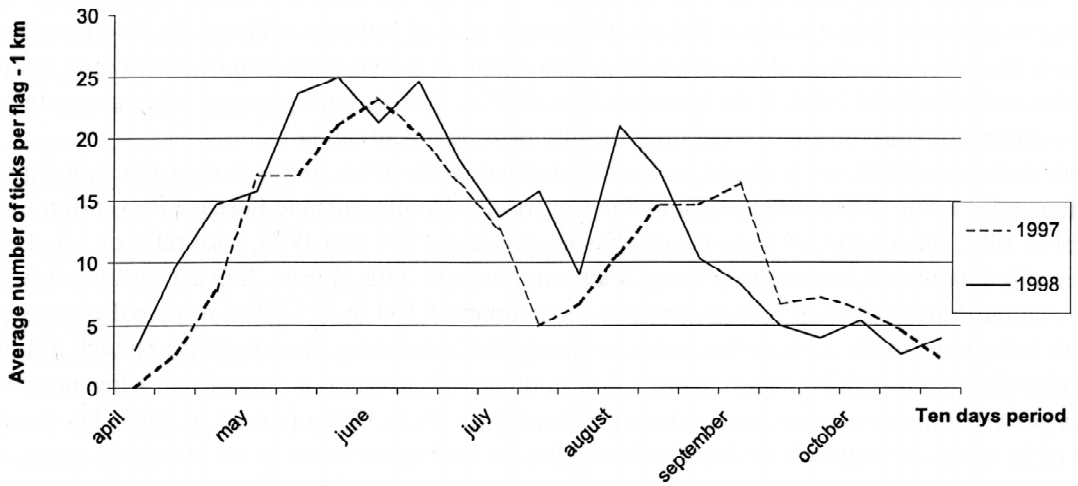

Figure 2. The abundance dynamics of *Ixodes ricinus* in three stacionaries, 1997, 1998.

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