

Tick-borne Encephalitis in Latvia 1973–2009: Epidemiology, Clinical Features and Sequelae

*Guntis Karelis*¹, *Antra Bormane*², *Inara Logina*¹, *Irina Lucenko*, *Normunds Suna*¹,
*Angelika Krumina*¹, *Michael Donaghy*³, *Rihards Lulens*¹,
*Deniss Lukjanciks*¹, *Ilze Serzante*¹

¹ Rīga Stradiņš University, Latvia

² Infectology Centre of Latvia, Riga, Latvia

³ Department of Clinical Neurology, University of Oxford, West Wing, John Radcliffe Hospital, Oxford, UK

Introduction. The study was carried out to report a 37-year observational experience in Latvia relating the incidence of human tick-borne encephalitis (TBE) and its clinical manifestations, to the field abundance of ticks.

Methods. Tick abundance was measured by standard flagging techniques. Incidence of human tick-borne disease was derived from Public Health reporting data. Clinical and follow-up data were determined from hospital cohorts from 1973 to 2009.

Results. Two TBE incidence peaks in the mid-1970s and the 1990s correlated with increased field abundance of ticks. Increased human TBE in the 1970s was associated with higher field abundance of both *Ixodes ricinus* and *I. Persulcatus*. The 1990s peak was particularly associated with *I. ricinus*, the species predominating in western/central Latvia, and with other factors, including changed agricultural land usage. Proportions of patients with meningitic or focal forms of TBE were similar in the two outbreaks and the intervening periods. Meningeal irritation occurred in 90%, altered consciousness in 19%, ataxia in 34%, seizures in 9%, bulbar features in 2–3% and limb weakness in 15% with shoulder amyotrophy predominating in 5%. Annual mortality varied from 0 to 1.3% and was not related to the overall incidence of TBE. Follow-up for 1–13 years of a cohort of 100 patients revealed long-term sequelae in over 50%, more commonly in those suffering focal forms of acute TBE.

Conclusions. Clinical features and mortality of the 1970s and 1990s TBE outbreaks were similar and did not point to a change in virulence.