EPI-NEWS

NATIONAL SURVEILLANCE OF COMMUNICABLE DISEASES

Editor: Peter Henrik Andersen
Dept. of Epidemiology
Statens Serum Institut • 5 Artillerivej • DK 2300 Copenhagen S

Tel.: +45 3268 3268 • Fax: +45 3268 3874
www.ssi.dk • epinews@ssi.dk • ISSN: 1396-4798

TICK BORNE ENCEPHALITIS DETECTED IN NORTH ZEALAND

No. 35, 2009

A forrester has been infected with TBE (tick borne encephalitis, also known as Central European encephalitis) following tick bites in Tokkeløb Hegn, Allerød. TBE suspicion arose when the patient tested negative for Borrelia infection. The presence of TBE virus has been confirmed via examination of ticks collected from a limited area of the wood in question. This is the first detection of TBE virus in Denmark outside of Bornholm, EPI-NEWS 46/04.

TBE

TBE's typical clinical picture is comprised by two phases. After an incubation period of 7-14 days, an influenza-like illness develops, lasting a few days. Approx. 1/3 of patients develop features of lymphocytic meningitis or meningo-encephalitis after a symptom-free interval of a few days to three weeks.
Frequently, the infection passes unnoticed, but it may also present initially as CNS symptoms.
About 1/3 of hospitalized patients develop persistent mental or neurological sequelae of varying severity. TBE rarely takes a serious course in children below school age. Elderly patients, however, are more likely to suffer serious neurological consequences.

Transmission of TBE virus

TBE is caused by a tick virus. It is transferred via tick bites within minutes after the bite occurs and, exceptionally, via unpasteurised milk. Typical virus hosts are mice, deer and birds. Woodland with dense undergrowth and shrubs harbours the highest infection risk. TBE is more frequent in persons who regularly spend time in nature, off tracks and paths, and is seen more rarely in persons who only frequent nature occasionally. The peak season for ticks is May-October.

Diagnostics

The diagnosis is made by PCR for virus in cerebrospinal fluid or blood, or via ELISA detection of specific antibodies in blood. High IgM titres suggest an actual or recent infection. An IgG titre increase exceeding factor 4 in the interval between the two tests supports the diagnosis. The initial blood sample should be taken as early as possible following symptom onset, and the second should be performed after a 1-2 week interval. On suspicion of TBE, an additional blood sample should be taken at hospital discharge. Other tick virus antibodies and previous vaccination against yellow fever or Japanese encephalitis may cross-react with TBE virus.

Occurrence in Denmark

In Denmark, the disease was previously only found in Bornholm where the period 2001-2008 saw a total of 22 diagnosed cases.
In the same period, travel-related TBE was established in another eight patients, including three cases acquired in Sweden. The median age of the 30 cases was 41 years (range 6-69).

Safety precautions

It is assessed that conditions in Tokkeløb Hegn are comparable to those found in Bornholm. Consequently, the recent TBE detection should not keep anyone from walking the woods of the area. The risk of tick bites can be reduced by using boots and long trousers and by frequently checking for and brushing off any ticks. There is no evidence that the use of mosquito repellents has any effect. In contrast to Borrelia transmission, in which the risk of infection may be reduced by removing the tick within 24 hours, transfer of the TBE virus probably occurs immediately in connection with the bite.

TBE vaccination

Vaccination may be considered in permanent or regular summer residents of TBE endemic areas who regularly walk off the paths, in woods and shrubbery. However, in cases of behaviour associated with a particularly great risk of infection, such as forestry work, or where woods are a habitual location for play, sport or hobby activities, vaccination may also be considered. For practical purposes, vaccination may be limited to cases aged 7 years or more, where TBE vaccination would otherwise be indicated. In day care centres etc. situated in wooded TBE endemic areas, the vaccine may be offered to staff, but children will not require vaccination. Side effects of the vaccine are more frequent in smaller children and the risk of serious TBE infection is very limited. For children above one year of age and adults, there is generally no reason to advice against it, if the patient requests vaccination. If continued protection is needed, the primary vaccination series should be followed by revaccinations, as described below.

Vaccination series

Statens Serum Institut currently stocks two TBE vaccines: TicoVac® 0,5 ml for persons above 16 years and TicoVac® Junior 0,25 ml for children aged 1 to 16 years. A total of three doses are given. The recommended interval between the first and second vaccination is 1-3 months. If a quick immune response is required, the second dose may be administered two weeks after the first. The third dose is a booster administered 5-12 months after the second vaccination. To achieve immunity by the beginning of the tick season, the initial and second doses should be given during the winter months, and the third dose before the beginning of the subsequent season. Follow-up revaccinations should be given at 3-5 year intervals, see summary of product characteristics at www.ssi.dk (Danish language)

Commentary

An increase in TBE incidence has been reported from several of the countries surrounding Denmark, and concurrently the virus has spread geographically. The detection of TBE outside of Bornholm is therefore not surprising. Several factors may contribute to explaining the changes in TBE epidemiology, including an increasing number of deer, and behavioural changes in animals and humans.
Detection of TBE in the currently tested area does not necessarily mean that TBE virus is present in all of Tokkeløb Hegn or in other woods of North Zealand. TBE occurrence may be highly localised. Statens Serum Institut will, in collaboration with the DTU, National Veterinary Institute, examine the occurrence of TBE in ticks from woods across the nation to reassess TBE occurrence in Denmark. Physicians, particularly in North Zealand, should consider TBE as a possible diagnosis whenever the relevant symptoms are present.
(A. Fomsgaard, Department of Virology, K. Mølbak, Department of Epidemiology, C. Bohn Christiansen, DCM, Copenhagen University Hospital, R. Bødker, DTU, National Veterinary Institute)

26 August 2009

Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2009 figures are preliminary)

Table 1	Week 34 2009	Cum. 2009 [1]	Cum. 2008 [1]
AIDS	1	28	23
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	1
Creutzfeldt-Jakob	1	9	3
Diphtheria	0	0	0
Food-borne diseases	18	352	508
of these, infected abroad	5	62	83
Gonorrhoea	24	366	238
Haemorrhagic fever	0	0	0
Hepatitis A	1	16	25
of these, infected abroad	0	8	11
Hepatitis B (acute)	0	20	14
Hepatitis B (chronic)	0	115	128
Hepatitis C (acute)	0	13	6
Hepatitis C (chronic)	3	190	257
HIV	0	149	150
Legionella pneumonia	1	88	78
of these, infected abroad	0	18	26
Leprosy	0	0	0
Leptospirosis	0	0	2
Measles	0	9	9
Meningococcal disease	0	45	41
of these, group B	0	24	17
of these, group C	0	15	13
of these, unspec. + other	0	6	11
Mumps	0	9	20
Neuroborreliosis	4	17	29
Ornithosis	0	5	2
Pertussis (children < 2 years)	0	68	72
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	5	2
Listeria monocytogenes	0	3	1
Streptococcus pneumoniae	0	55	65
Other aethiology	0	9	16
Unknown aethiology	0	10	16
Under registration	2	21	-
Rabies	0	0	0
Rubella (congenital)	0	0	1
Rubella (during pregnancy)	0	0	0
Shigellosis	7	65	50
of these, infected abroad	0	41	41
Syphilis	2	171	71
Tetanus	0	0	1
Tuberculosis	1	237	261
Typhoid/paratyphoid fever	0	13	22
of these, infected abroad	0	10	17
Typhus exanthematicus	0	0	0
VTEC/HUS	5	78	91
of these, infected abroad	0	13	30

[1] *Cumulative number 2009 and in corresponding period 2008*

Selected laboratory diagnosed infections

Number of specimens, isolates, and/or notifications received in SSI laboratories

Table 2	Week 34 2009	Cum. 2009 [2]	Cum. 2008 [2]
Bordetella pertussis (all ages)	6	148	126
Gonococci	17	294	240
of these, females	5	82	49
of these, males	12	212	191
Listeria monocytogenes	0	50	33
Mycoplasma pneumoniae			
Resp. specimens [3]	1	43	49
Serum specimens [4]	3	75	62
Streptococci [5]			
Group A streptococci	5	109	108
Group B streptococci	1	76	80
Group C streptococci	0	25	12
Group G streptococci	6	110	92
S. pneumoniae	5	746	659
Table 3	**Week 32 2009**	**Cum. 2009 [2]**	**Cum. 2008 [2]**
MRSA	40	449	371
Pathogenic int. bacteria [6]			
Campylobacter	112	1795	1844
S. Enteritidis	14	358	287
S. Typhimurium	20	574	1158
Other zoon. salmonella	17	414	614
Yersinia enterocolitica	3	150	191
Verocytotoxin-producing E. coli	2	75	87
Enteropathogenic E. coli	14	130	84
Enterotoxigenic E. coli	13	173	213

[2] *Cumulative number 2009 and in corresponding period 2008*

[3] *Resp. specimens with positive PCR*

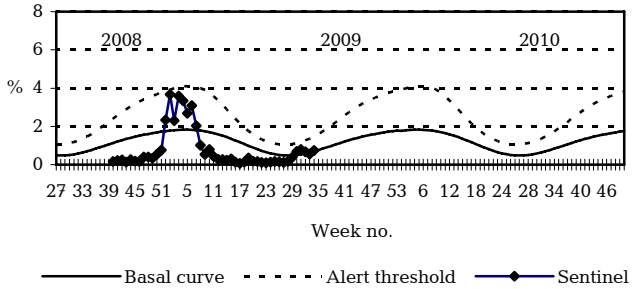
[4] *Serum specimens with pos. complement fixation test*

[5] *Isolated in blood or spinal fluid*

[6] *See also www.germ.dk*

Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2008/2009/2010



Sentinel:	Influenza consultations (as percentage of total consultations)
Basal curve:	Expected frequency of consultations under non-epidemic conditions
Alert threshold:	Possible incipient epidemic