Reduction in the number of patients with neuroborreliosis, following a significant reduction in roe deer abundance on the island of Funen

Andersen, Nanna Skaarup ; Moestrup Jensen, Per; Skarphédinson, Sigurdur; Riis Olesen, Carsten ; Jensen, Thøger Gorm; Kolmos, Hans Jørn

Publication date:
2014

Citation for published version (APA):
Andersen, N. S., Moestrup Jensen, P., Skarphédinson, S., Riis Olesen, C., Jensen, T. G., & Kolmos, H. J. (2014). Reduction in the number of patients with neuroborreliosis, following a significant reduction in roe deer abundance on the island of Funen. Poster session presented at 24th European Congress of Clinical Microbiology and Infectious Diseases, Barcelona, Spain.

Terms of use
This work is brought to you by the University of Southern Denmark through the SDU Research Portal. Unless otherwise specified it has been shared according to the terms for self-archiving. If no other license is stated, these terms apply:
- You may download this work for personal use only.
- You may not further distribute the material or use it for any profit-making activity or commercial gain.
- You may freely distribute the URL identifying this open access version.

If you believe that this document breaches copyright please contact us providing details and we will investigate your claim. Please direct all enquiries to puresupport@bib.sdu.dk
The Roe deer (Capreolus capreolus) population on the island of Funen, Denmark has since the year 2002, been suffering from increased mortality (fig. 1) and there has been a 50% reduction in the annual hunting bag (1, 2).

It is well established that the abundance of the tick Ixodes ricinus – the vector of Borrelia burgdorferi s.l in Europe – is correlated with the abundance of roe deer (3). Since tick abundance correlates with human cases of neuroborreliosis, it was hypothesized that the reduction in roe deer densities had led to changes in human neuroborreliosis cases in the region (4).

The data collected from 1990/94 to 2013 is shown in figure 2*. Linear regression show significant correlation with the roe deer bag for current year, and bag numbers of the past one to three years (P’s <0.0001). The highest level of explanation R = 0.62 was found between roe deer bag two-years past.

The reduction in roe deer abundance can explain up to 62% of the total variation in patients with neuroborreliosis on the island of Funen in the period 1994 to 2013. The highest correlation was observed by assuming a two year delay from changes in the roe deer population to neuroborreliosis manifestation in the human population. The cause for the delay is defined by the development periods of the local tick population and difference in tick instar host-preferences.