



Epidemiology and Cost of Hospital Care for Lyme Borreliosis in Germany

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Introduction

In spite of high public interest little is known about the impact of Lyme borreliosis (LB) on European health care systems especially for the inpatient sector. The aim of the present study is to assess the associated annual cost and to gain epidemiological information on LB patients requiring hospital treatment. Therefore in the absence of nationwide surveillance data it seems attractive to rely on other sources of data with comprehensive coverage such as claims data of statutory health insurance companies.

Materials and Methods

- Cost-of-illness-study
- Secondary data analysis of claims data provided for the years 2007-2011 by a German statutory health insurance company covering approx. 6 million insured
- Inclusion criterion:
 - Incident inpatient diagnosis of Lyme borreliosis (ICD-10-GM-code: A69.2) as primary diagnosis in 2008-2011
- Incorporated cost components:
 - Direct medical costs for hospitalization and indirect costs assessed by human-capital method
- Total costs calculated for a 1-year period from the third-party payers perspective respectively from the societal perspective
- Analysis of disease manifestations in coded secondary diagnoses:
 - Meningitis (G01*); Encephalitis, Myelitis or Encephalomyelitis (G05.*); Facial nerve disorders (G51.-); Polyneuropathy (G63.0*) and Arthritis (M01.2.*)

References

Müller, I., Freitag, M. H., et al., 2012. Evaluating frequency, diagnostic quality, and cost of Lyme borreliosis testing in Germany: a retrospective model analysis. Clin. Dev. Immunol. 2012: 595427

Results

- Incident diagnosis coded in 2,163 cases in the study period
- Median inpatient time: 9 days (IQR: 5-14)
- Median cost per stay: 2,843 € for adults and 3,917 € for adolescents (<18 years)
- Typical seasonal accumulation of cases between June and September
- Notable changes in disease manifestations in the course of the year with juvenile neuroborreliosis almost exclusively occurring between May and Oct (Fig. 1)

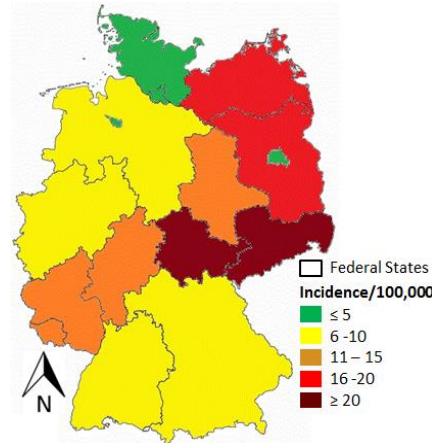
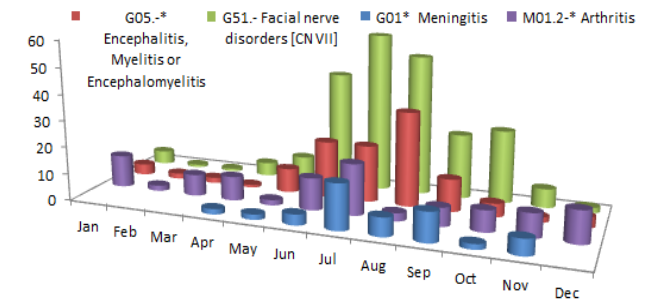


Fig. 2 Spatial distribution of mean annual incidence of LB on federal state level

Fig. 1 Absolute frequency of coded secondary diagnoses in LB cases aged <18 years by month of hospital admission, 2008-2011



Extrapolation of findings to Germany as a whole:

- Hospital admission for LB treatment in 7,500 individuals annually
- Annual direct medical cost of more than 23 million € and indirect cost of about 7 million €
- Bimodal age-specific incidence with prominent peak in adolescents aged 3-17 years (maximum of 29/100,000 inhabitants in children between 6 and 9) and a second peak in elderly aged 60-79
- Male predominance in LB inpatients
- Mean nationwide incidence 9/100,000 with surprising regional variability (Fig. 2)

Conclusions

The study extends the knowledge on the epidemiology of hospital care for LB by means of a claims data analysis which is a valuable tool to study routine clinical care on the population level. It identifies LB as a possibly underestimated social (annual 5,200 adult and 2,300 adolescent inpatients) and economic (cost of about 30 million Euro) factor for hospital care in Germany. Together with the predicted spending of 51.2 million Euro for diagnostics and treatment in LB outpatients (Müller et al., 2012) the projected total annual economic impact of Lyme borreliosis in Germany will result in more than 80 million Euro.