BURDEN OF TBE, SWEDEN

Background

In Sweden, the number of TBE cases have dramatically increased over the past three decades, with an average of 328 notified cases annually during the past 5 years (2017–2021), which corresponds to an incidence of 3.7 cases / 100,000 population. Although most presentations of TBE virus infections are mild, TBE can cause severe disease requiring support in intensive care units. Neurologic sequelae are common and often long lasting. The increase in incidence of TBE has stimulated discussions regarding the need for public vaccination programs in Sweden, but thorough data concerning the burden of TBE are needed to determine cost-effectiveness of such a program. Therefore, a study has been conducted to provide a baseline to enable informed decisions on immunization programs.

Results

Data have been collected from various sources, e.g., from the National Board of Health and Welfare related to the diagnostic code for TBE during 1998–2014. The Swedish Social Insurance Agency provided data concerning numbers of sick leave days. From the Region Västra Götaland Primary Healthcare Register data were obtained regarding primary care visits for persons with TBE, and data concerning death caused by TBE were obtained from the Swedish National Cause of Death Register. The costs of illness for all TBE patients in Sweden were calculated on various monetary values. For instance, the average cost per day of hospital stay during 2014–2018 (€1,049), the cost for specialist outpatient visit (€338), the average cost per primary care visit (€199), loss of income median monthly wage (€ 3,090), the cost of death caused by TBE (€4.05 million), etc.

Data obtained from the Swedish National Patient Register identified 2,429 reported patients hospitalized with TBE during 1998–2014. Of these, 1,751 patients were entered in the register during 2005–2014. Over the same period, 2,047 TBE patients were reported in Sweden, indicating that 296 (14%) did not require hospitalization. Fifty-nine percent of the patients were men, 41% were women. The mean age of the patients was 47 years. A total of 39 TBE-related deaths were registered, corresponding to a case-fatality rate of 1.1%, of whom 64% were men and 36% were women. Ninety percent of deceased patients were ≥60 years old.

Days spent in hospital care were small and statistically insignificant when comparing the burden of TBE before the onset of disease with a control cohort, but after onset of disease patients were hospitalized an average of 11.5 days during the first year compared with an average of 1.1 days for the referent cohort. These differences remained largely unchanged in the following year, while the number of sick leave days over a 3-year period before TBE onset was an average of 12 days, this number increased to 66 days compared to 11 days for the referent cohort one year after TBE onset, and three years later this difference was even greater.

The average cost of illness for one TBE patient was €20,504 during the first year after TBE onset. Days spent in hospital accounted for 52% of this cost, days of sick leave 42%. The cost grew by approx. €3,600 in year 2 and 3 to a cumulative cost of €24,126 by 3 years after TBE onset. Of the 359 TBE cases registered in Sweden in 2019, a total of four patients died of this disease, equating to a cost of illness of €7.3 million and a cost of death of €16.2 million, for a total cost of €23.5 million. The corresponding average annual cost for 2015–2019 is €24.5 million; the cost of illness accounts for €6.6 million and that of death €17.8 million.

Discussion

The burden of TBE was higher than previously estimated. The results presented in this publication show that TBE poses a substantial burden as measured by the use of healthcare and sick leave. According to the analysis, hospitalization accounted for half of the disease burden and sick leave days accounted for a substantial share. Translating the societal burden of TBE that rises from increased healthcare use and sick leave into monetary cost of illness is helpful for assessing the cost-effectiveness of immunization programs and other healthcare interventions. Using a referent cohort comparison made it possible to identify the net burden of disease.

Literature

Slunge et al.

Burden of tick-borne encephalitis, Sweden

Emerg. Infect. Dis. 2022, in press, doi.org/10.3201/eid2802.204324

Author: Dr. Michael Bröker

Compiled: January 2022