Disability-adjusted life years (DALYs) as a composite measure to express the burden of tick-borne encephalitis (TBE) in Slovenia

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Backround

- Within Europe, Slovenia is one of the countries with the highest incidence of TBE and very low vaccination coverage.
- The burden of TBE is mostly expressed only by the incidence.
- A more comprehensive indicator than only the incidence is needed to express the burden of TBE such as DALYs.

Objectives

The purpose of the present study is to estimate the burdens from the population- and individual perspectives for TBE in Slovenia, measured in DALYs and evaluate the possibilities of reducing this burden.

Methods

DALYs = YLLs + YLDs

YLLs = the number of life years lost due to premature death
YLDs = the number of life years lost due to disability, weighted for severity of the disability

The DALYs' calculations are based on the natural course of the disease: health outcomes from death due to TBE, the acute disease of the second stage and mild, moderate and severe neurological sequelae. Correction for underestimation is applied. Sensitivity analysis is performed.

Results

From the population perspective total DALYs amount to 3,450 while from the individual perspective they amount to 3.1 per case.

The most influential parameters on DALYs from the population perspective:

- Disability weights of moderate sequelae
- Severe sequelae
- Acute disease
- Moderate sequelae

Conclusions

- It is concluded that TBE is a high burden, measured in DALYs from the population and individual perspectives in Slovenia.
- Neurological sequelae have the biggest influence on the burden of TBE.
- DALYs measure more than only the incidence in the assessment of the burden of TBE.
- Rising awareness and increasing vaccination coverage for TBE is needed to reduce the burden in Slovenia, leading to huge population health benefits on national scales.
- It is advisable to start an extended vaccination campaign in Slovenia that can prevent morbidity and its consequences with resulting in economic returns.

References


Figure 1: TBE incidence in Europe [1]

Figure 2: Natural course of TBE [2]