

Summary and conclusions

Lyme borreliosis, commonly known as Lyme disease, is the most common tick-borne infection in the northern hemisphere. The most frequent manifestation of Lyme disease is characterized by a circular cutaneous lesion referred to as erythema migrans. Although much less common, Lyme disease can also affect the nervous system (neuroborreliosis) or the joints (Lyme arthritis). According to current Swedish recommendations, all manifestations of Lyme borreliosis should be treated with antibiotics for 10–14 days. The objectives of this report are to investigate whether there is evidence that evaluates a longer period of treatment with antibiotics than what is recommended in Sweden today.

Conclusions

- ▶ Better research, consisting of properly designed and well conducted studies measuring both benefits and risks, is needed to determine the optimal duration of antibiotic treatment for Lyme borreliosis. There is currently insufficient evidence to determine whether extending antibiotic treatment beyond 10 to 14 days improves health outcomes for patients with erythema migrans.
- ▶ There is insufficient evidence to determine if extended antibiotic treatment has any significant effect on neuroborreliosis, Lyme arthritis or other persistent symptoms of Lyme borreliosis.
- ▶ The extended treatment (>21 days) with antibiotics (ceftriaxone) via peripherally inserted central catheter, is associated with a not-in-significant risk of serious and potentially life-threatening complications.

Method and population

Lyme borreliosis is treated with antibiotics. For adults with erythema migrans, the recommendation in Sweden is phenoxymethylpenicillin for 10 days. The treatment recommendation for neuroborreliosis or Lyme arthritis is doxycycline or ceftriaxone for 10 to 14 days. There are special recommendations for pregnant women and children (Appendix 1). The population in this report consists primarily of persons who have been infected with Lyme borreliosis after a tick bite and have contracted erythema migrans, neuroborreliosis or Lyme arthritis. A further population consists of persons with persistent symptoms after a course of treatment for Lyme borreliosis.

Patient benefit

SBU uses the internationally developed evidence grading system GRADE to compile results. A summary of the studies that were used to assess the strength of evidence in this study, including motivation for their grading, appears in Table 1.

Evidence-graded results

There is insufficient scientific evidence to assess whether a 20-day course of antibiotic treatment is more effective than 10 to 14 day treatment for patients with erythema migrans (⊕○○○).

There is insufficient scientific evidence to be able to assess whether a longer course of antibiotic treatment is more effective than 14 day treatment for patients with neuroborreliosis or Lyme arthritis (⊕○○○).

There is insufficient scientific evidence to assess whether continued antibiotic treatment is effective after the initial diagnosis and treatment of Lyme borreliosis for patients with persistent symptoms (⊕○○○).

Ethical aspects

Due to limited resources, health care must be evidence-based and governed by medical needs. A consequence of this may be that patients' perceived needs and wishes come into conflict with the profession, who must also weigh up the risk of injuring the patient against the sometimes uncertain benefits of the treatment. Such conflicts arise in the case of Lyme borreliosis, primarily with regard to patients' desire for a longer treatment period (months or years). One conclusion of this report is that there is no evidence of the benefit from a longer period of treatment, due to the lack of properly conducted studies investigating the effect of longer treatment with antibiotics for patients with persistent symptoms or Lyme borreliosis.

There is, on the other hand, a risk of serious complications with longer treatment periods. It is important to fully inform patients who request extended antibiotic treatment.

Economic aspects

The cost of treatment for erythema migrans is low, consisting mainly of the price of antibiotics. The costs for neuroborreliosis are higher. Based on a Swedish study, the average cost per patient with neuroborreliosis is approximately SEK 43 000. Since there is insufficient evidence that a longer treatment period is more effective than a shorter one, it is not possible to make a relevant analysis of cost-effectiveness.

For more on this report, please visit www.sbu.se/201305e

TABLES IN ENGLISH

- Table 1 Summary of findings table and quality of evidence of the effect of antibiotic treatment of varying length for Lyme borreliosis, [page 2](#)
- Table 2 Effect of short versus longer duration of antibiotic treatment in early and disseminated Lyme borreliosis, [page 7–10](#)
- Table 3 Studies from USA on the effect of longer duration of antibiotic treatment in patients with persisting symptoms of Lyme borreliosis, [page 19–22](#)

REFERENCES

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