

## **Lyme Borreliosis: Prevention, Pregnancy, Immunodeficiency, Post-Lyme Syndrome (Recommendations of the Swiss Society for Infectious Diseases)**

### **Summary Part III (Full review articles in German [1-3] or French [4-6])**

Protection against tick bites relies on adequate clothing, which prevents ticks from attachment, and a careful search for ticks after an exposure. Areas to which special attention has to be paid are the head and neck in children and inguinal and axillary folds together with the popliteal fossa in adults. Attached ticks should be promptly removed by gentle traction. Remaining mandibles can be left in place as they will fall off spontaneously. Manipulations should be avoided as they can lead to bacterial superinfections. Repellents, containing DEET or EBAAP, show an efficacy of only 40%. Protection lasts only for few hours. Impregnation of cloths is advisable only for recurrent exposure.

As the rate of seroconversion after tick bites in Switzerland is low, compared to the high rate of side effects after antibiotic post-exposure prophylaxis, it cannot be recommended. There are no vaccines against Lyme disease available at the moment.

Reinfections are possible as Lyme disease does not lead to a protective immunity. These have to be diagnosed by the clinical symptoms. Only changes in the western blot or a renewed seroconversion or a new positive pcr result can support the diagnosis.

The course of Lyme disease is not influenced by pregnancy. As transplacental transmission can occur at any point of time during pregnancy, prompt treatment is recommended. Most deformities, which have been reported, could be attributed to other causes. Treatment is according to the recommendations in adults, with the exception that doxycycline is contraindicated. There is no evidence that Lyme disease is transmitted by lactation.

Earliest dissemination and treatment failure have been observed in immunocompromized patients, but clinical manifestations do not differ. As treatment responses have always been favorable to a second course of antibiotics, treatment recommendations do not diverge for immunocompromized hosts.

Prognosis of Lyme disease is generally favorable. Symptoms can need weeks to months until they resolve and are not a sign of treatment failure. Time to resolution of symptoms depends on disease stage, duration of symptoms before treatment and adequacy of treatment. Persisting symptoms must be differentiated from slowly resolving symptoms or residual defects. Fibromyalgia and chronic fatigue syndrome are important differential diagnosis, which will not respond to antibiotic treatment.

The clinical significance of the Post-Lyme-Syndrome is unknown. It consists of fatigue, arthralgias, myalgias, objective cognitive deficits and radicular pain, which have to persist for more than 6 months after completion of an adequate treatment of a clinically and microbiologically proven Lyme disease. Further antibiotic treatment will not improve the symptoms as long as an active infection has been ruled out and patients have received adequate treatment. Cognitive treatment can be useful.

### **Versions in German:**

1. Evison J, Aebi C, Francioli P, Péter O, Bassetti S, Gervaix A, Zimmerli S, Weber R (2005) Abklärung und Therapie der Lyme-Borreliose bei Erwachsenen und Kindern: Empfehlungen der Schweizerischen Gesellschaft für Infektiologie. Teil 1: Epidemiologie und Diagnostik. Schweiz. Ärztezeitung 86:2332-2338.
2. Evison J, Aebi C, Francioli P, Péter O, Bassetti S, Gervaix A, Zimmerli S, Weber R (2005) Abklärung und Therapie der Lyme-Borreliose bei Erwachsenen und Kindern: Empfehlungen der Schweizerischen Gesellschaft für Infektiologie. Teil 2: Klinik und Therapie. Schweiz. Ärztezeitung 86:2375-2384.

3. Evison J, Aebi C, Francioli P, Péter O, Bassetti S, Gervaix A, Zimmerli S, Weber R (2005) Abklärung und Therapie der Lyme-Borreliose bei Erwachsenen und Kindern: Empfehlungen der Schweizerischen Gesellschaft für Infektiologie. Teil 3: Prävention, Schwangerschaft, Immundefizienz, Post-Lyme Syndrom. Schweiz. Ärztezeitung 86:2422-2428.

**Versions in French:**

4. Evison J, Aebi C, Francioli P, Péter O, Bassetti S, Gervaix A, Zimmerli S, Weber R. Borrélieuse de Lyme. 1ère partie: épidémiologie et diagnostic. Rev Med Suisse 2006;2:919-24.
5. Evison J, Aebi C, Francioli P, Péter O, Bassetti S, Gervaix A, Zimmerli S, Weber R. Borrélieuse de Lyme. 2e partie: clinique et traitement. Rev Med Suisse 2006;2:925-34.
6. Evison J, Aebi C, Francioli P, Péter O, Bassetti S, Gervaix A, Zimmerli S, Weber R. Borrélieuse de Lyme. 3e partie : prévention, grossesse, états d'immunodéficience, syndrome post-borrélieuse de Lyme. Rev Med Suisse 2006;2:935-40.