Analele Universității din Oradea, Fascicula: Ecotoxicologie, Zootehnie și Tehnologii de Industrie Alimentară Vol. XIII/B,

PARTICULAR ASPECTS OF LYME DISEASE IN BIHOR COUNTY

Csep Andrei*, Turda Constanta*

*University of Oradea, Faculty of Medicine and Pharmacy, 3-5 1 Decembrie str. e-mail: <u>csep.andrei@gmail.com</u>

Abstract

Our goal was to describe the epidemiological, clinical and paraclinical aspects of the patients diagnosed with Lyme disease in Bihor county between 01.01.2012-01.10.2014. Most of them came from different locations in Bihor county like, Hidisel, Ceica, Alesd, Sacueni, Salonta and Oradea

15% of patiets with tick bites were diagnosed with Lyme disease, without significant differences in terms of rural/urban distribution). Most patients were diagnosed in the summer month (June - July - August), perilesional erythema being the most common sign, in 23% accompanied by fatigue, myalgia and arthralgia.

Borrelia IgM antibodies negative results were more frequently noted after 6 months from starting antibiotherapy.

Key words: Borrelia burgdorferi, Western Blot, Borrelia garini, ELISA, tick

INTRODUCTION

Lyme disease is an emerging infectious disease caused by at least three species of bacteria belonging to the genus *Borrelia*: Borrelia burgdorferi sensu stricto, Borrelia afzeli and Borrelia garini. It is transmitted to humans by the bite of infected ticks belonging to a few species of the genus *Ixodes*. (Hess A, Buchmann J, Zettl UK, *et al.*1999), (Hu MD, Linden 2009), (Mullegger RR, 2004), (Rapini, Ronald P. Bolognia et al. 2007), (Puius YA, Kalish RA, June 2008), (Ryan KJ, Ray CG (editors), 2004).

Typical symptoms includes headache, fever and fatigue and a skin rush called erythema migrans. (Stanek G, Strle F, 2008). Other discrete symptoms include migrating pain in muscles, joints, and tendons, and heart palpitations and dizziness caused by changes in heartbeat. In some cases the infection can spread to heart, joints and nervous system. (Samuels DS; Radolf, JD (editors), 2010), (Seltzer EG, Gerber MA, Cartter ML et al, 2000).

Various acute neurological problems, termed neuroborreliosis, appear in 10–15% of untreated patients. These include facial palsy, which is the loss of muscle tone on one or both sides of the face, as well as meningitis, which involves severe headaches, neck stiffness, and sensitivity to light. Radiculoneuritis causes shooting pains that may interfere with sleep, as well as abnormal skin sensations. (Wang G, van Dam AP, Schwartz I et al, 1999). Mild encephalitis may lead to memory loss, sleep

disturbances, or mood changes. (Steere AC, Sikand VK, Schoen RT et al, 2003).

The ticks that transmit Lyme disease ussually transmit other thickborne diseases. (Auwaerter PG, Aucott J, Dumler JS, 2004), (Cairns V, Godwin J, 2005), (Chabria SB, Lawrason J, 2007), (Dandache P, Nadelman RB, 2008), (Edlow JA, 2007), (Fallon BA, Nields JA, 1994), (Fahrer H, Sauvain MJ, Zhioua E, Van Hoecke C, Gern LE, 1998), (Johnson RC, 1996).

MATERIAL AND METHOD

Our goal was to describe the epidemiological, clinical and paraclinical aspects of the patients diagnosed with Lyme disease in Bihor county between 01.01.2012-01.10.2014. The positive diagnosis was made with the serological tests (ELISA for the detection and after that Western Blot for confirmation of Lyme disease).

The study included 615 patients, who presented at the outpatient of Infectious diseases from the Emergency Clinical Hospital in Oradea for a tick bite. Most of them came from different locations in Bihor county like, Hidisel, Ceica, Alesd, Sacueni, Salonta and Oradea.

RESULTS AND DISCUSION

15% of patiets with tick bites were diagnosed with Lyme disease (Fig. 1.), without significant differences in terms of rural/urban distribution (Fig. 2).



Fig. 1 Distribution of cases depending on the occurrence of Lyme disease



Fig. 2. The rural/urban distribution of the patients with Lyme disease



Fig. 3. The localisation of the tick bite



Fig. 4. Monthly distribution of patients with Lyme diseases

The distribution on age groups shows that the most freequent period to contact Lyme disease was between 30-35 years old. The perilesional erythema disapeard after 2 weeks (19 cases-20%) after 3 weeks (63 cases-67%) and after 4 weeks (12 cases-13%) of starting Doxycicline 200 mg/day or Amoxicillin 3g/day for 21 days. (Fig. 5)

Borrelia IgM antibodies negative results were more frequently noted after 6 months from starting antibiotherapy. (Fig. 6.)



Fig. 5. The disapperance of perylesional erythema



Fig. 6. The negative level of IgM Borrelia antibodies

CONCLUSIONS

15% of 615 patiets with tick bites were diagnosed with Lyme disease.

The most frequent tick bite localisation was in the abdomen and after that in the inferior legs.

Most patients were diagnosed in the summer month (June - July - August).

The perilesional erythema disappeared more frequently after 3 weeks in 54% of cases.

REFERENCES

1. Auwaerter PG, Aucott J, Dumler JS (January 2004). "Lyme borreliosis (Lyme disease): molecular and cellular pathobiology and prospects for prevention, diagnosis and treatment.

2. Cairns V, Godwin J (2005). "Post-Lyme borreliosis syndrome: a meta-analysis of reported symptoms". *Int J Epidemiol* 34 (6): 1340–1345.

3. Chabria SB, Lawrason J (2007). "Altered mental status, an unusual manifestation of early disseminated Lyme disease: A case report". *Journal of Medical Case Reports* 1 (1): 62..

4. Dandache P, Nadelman RB (June 2008). "Erythema migrans". Infect. Dis. Clin. North Am. 22 (2): 235–60, vi..

5. Edlow JA (2007-01-25). "Lyme disease". eMedicine. http://www.emedicine.com/derm/topic536.htm. Retrieved 2007-08-21.

6. Fahrer H, Sauvain MJ, Zhioua E, Van Hoecke C, Gern LE (1998). "Longterm survey (7 years) in a population at risk for Lyme borreliosis: what happens to the seropositive individuals?". *Eur. J. Epidemiol.* 14 (2): 117–123.

7. Fallon BA, Nields JA (1994). "Lyme disease: a neuropsychiatric illness". *The American journal of psychiatry* 151 (11): 1571–1583..

8. Hess A, Buchmann J, Zettl UK, *et al.* (1999). "*Borrelia burgdorferi* central nervous system infection presenting as an organic schizophrenia-like disorder". *Biol. Psychiatry* 45 (6): 795.

9. Hu MD, Linden (2009). "Clinical Manifestations of Lyme Disease in Adults". *UpToDate*. UpToDate

10. Johnson RC (1996). "Borrelia". *Baron's Medical Microbiology* (Baron S *et al.*, eds.) (4th ed.). Univ of Texas Medical Branch. ISBN 0-9631172-1-1.

12. Mullegger RR (2004). "Dermatological manifestations of Lyme borreliosis". *Eur J Dermatol* 14 (5): 296–309..

13. Puius YA, Kalish RA (June 2008). "Lyme arthritis: pathogenesis, clinical presentation, and management". *Infect. Dis. Clin. North Am.* 22 (2): 289–300,

14. Rapini, Ronald P.; Bolognia, Jean L.; Jorizzo, Joseph L. (2007). Dermatology: 2-Volume Set. St. Louis: Mosby. ISBN 1-4160-2999-0.

15. Ryan KJ, Ray CG (editors) (2004). *Sherris Medical Microbiology* (4th ed.). McGraw Hill. pp. 434–437. ISBN 0838585299.

16. Samuels DS; Radolf, JD (editors) (2010). Borrelia: *Molecular Biology, Host Interaction and Pathogenesis*. Caister Academic Press. ISBN 978-1-904455-58-5.

17. Seltzer EG, Gerber MA, Cartter ML, Freudigman K, Shapiro ED (February 2000). "Long-term outcomes of persons with Lyme disease". *JAMA* 283 (5): 609–16.