

## THE NEW EMERGING ISSUE OF LYME DISEASE BETWEEN 2009-2011 IN SIBIU COUNTY

VICTORIA BÎRLUȚIU<sup>1</sup>, R. M. BÎRLUȚIU

<sup>1,2</sup> "Lucian Blaga" University of Sibiu

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**Abstract:** Lyme disease, has a recurrence in the last three years, with an increased incidence at an national point from 0.5%000 in 2009 to 1.5%000 in 2010, respectively up to 16.3%000 in Sibiu county in 2010, an incidence of over two deviations from the average at an national level. We proposed to make an epidemiological, biological, clinical and therapeutic analyze of hospitalized cases in the Department of Infectious Diseases County Hospital Sibiu between 2009-2010. Most cases were diagnosed and hospitalized in 2010, patients were confirmed serologically by the Public Health Department. There were more female patients (sex ratio 1:1,61), from urban areas 71 cases, in hot season (June and July) from patients who recognize the moment of transmission of the disease (in 77.45% of cases). Migratory erythema was present in 67 cases, associated with fever, satellite adenopathy, headache, dizziness, pruritus, asthenia, polymyositis and dyspeptic symptoms. The second stage was diagnosed at 24 patients with articular manifestations and cardiovascular (6 cases). The third stage was diagnosed with neurological manifestation at 37 patients, 2 cases of meningitis, demyelinating lesions confirmed by MRI at 6 patients, 1 ischemic stroke and optic neuritis (4 cases). 3 cases had showed leukopenia, 6 leukocytosis and 26 patients had inflammatory syndrome. Treatment of Lyme disease was performed with aminopeniciline, cefuroxime and ceftriaxone, doxycycline was administered as monotherapy in the primary stage or for the consolidation of the therapeutic response for the first treatment scheme.

**Cuvinte cheie:** *Borelia,*  
*aspecte clinice, terapie*

**Rezumat:** Boala Lyme, prezintă o recrudescență în ultimii 3 ani, cu creșterea incidenței la nivel național, de la 0.5%000loc în 2009 la 1.5%000loc în 2010, respectiv la 16.3%000 loc în județul Sibiu, în 2010, adică o incidență cu peste două deviații față de media națională. Ne-am propus analiza epidemiologică, clinico-biologică și terapeutică a cazurilor spitalizate în perioada 2009-2010 în Clinica Boli Infecțioase Adulți. Cele mai multe cazuri au fost diagnosticate și spitalizate în 2010, pacienții fiind confirmați serologic prin Direcția de Sănătate Publică. Au fost înregistrate mai multe cazuri la genul feminin (sex ratio 1:1,61), în mediu urban (71 cazuri), în sezon cald (iunie și iulie), la pacienți care recunosc momentul transmiterii bolii în 77,45% din cazuri. Eritemul migrator a fost prezent la 67 cazuri, asociat cu febră, adenopatii satelite, cefalee, vertij, prurit, astenie, polimiozită, manifestări dispeptice. Stadiul al doilea s-a diagnosticat la 24 pacienți, cu manifestări articulare, respectiv și cardiovasculare (6 cazuri). Al treilea stadiu, cu afectare neurologică s-a diagnosticat la 37 pacienți, 2 cazuri cu meningită, 6 pacienți cu leziuni demielinizante confirmate prin RMN, un accident vascular ischemic, nevrită optică (4 cazuri). Din punct de vedere biologic, 3 cazuri au prezentat leucopenie, 6 leucocitoză, 26 pacienți aveau sindrom inflamator prezent. Tratamentul bolii Lyme, s-a efectuat cu aminopeniciline, cefuroxim sau ceftriaxon; doxicilina s-a administrat în stadiul primar ca monoterapie sau pentru consolidarea răspunsului terapeutic al primei scheme.

### INTRODUCERE

Lyme disease is part of zoonoses, an spirochete infections, caused by *Borrelia* spp with the 3 species: *B. burgdorferi*, *garrinii* and *B. burgdorferi* *afzelii*, that is transmitted by tick borne. The reservoir consists of mammals-deer, ruminants, dogs, mice or birds, which have bacteremia, the transmission is to the *Ixodes ricinus*, *damini*, *pacificus* group of ticks, rare gadfly or flies. The difficulties in notification the time of the infection are determined by the fact that 85% of cases are bites of tick in the nymph stage and only 15% of cases are associated with bites of an adult tick plus the absence of migratory erythema, cases with severe affected joint due to immunological mechanisms, the production of proinflammatory

cytokines and intraarticular immune complexes, associated factors, genetic predisposition HLA-DR4, HLA-DR2, cardiac or neurological manifestation, that makes a special problem for etiologic diagnosis and appropriate treatment. Clinical Lyme disease progresses in three stages: the first stage is characterized by chronic migratory erythema, sometimes multiple skin elements, similar to the primary affected without involving several tick bites, fever, lymphadenopathy, myalgia, flu-like syndrome. After the regression of migratory erythema it remains persistent physical fatigue and diffuse myalgias. The secondary stage is characterized by arthritis which affects one joint or that has an poliarticular migrator character that migrates at a rate of 1-2 days, the most commonly affected are knees and elbows

<sup>1</sup>Autor Corespondent: Victoria Bîrluțiu, Facultatea de Medicină "Victor Papilian" Sibiu, Str. Lucian Blaga, Nr.2A, Sibiu, 550169, România, e-mail: victoriabirlutiu@yahoo.com; tel: +40 (269) 21.23.20

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joints, paralysis of cranial nerves, atrioventricular block, heart syncope, meningitis with pleocytosis dominated by mononuclear leukocytes, fatigue. In the third stage it's persistent arthralgia, it appears myelitis, chronic encephalitis, paralysis, fibromyalgia and chronic fatigue syndrome. The differential diagnosis of Lyme disease is carried by other heart problems, skin diseases, arrhythmia, aseptic meningitis, fibromyalgia, arthritis of other etiologies, systemic lupus erythematosus.

Positive diagnosis is suggested by epidemiological data (absent in over 60% of cases) and clinical data, confirmed by laboratory cultures or skin biopsies, usually by serological tests, determination of IgM antibodies and IgG by ELISA at patients with clinical manifestations, with subsequent confirmation by Western blot [1].

In the absence of etiological therapy, patients with Lyme disease continue to produce IgM and IgG both present at the same time. At patients neurological manifestation, it can be investigated specific intrathecal antibodies by examining CSF with Western blot [2].

The treatment of Lyme disease does not require the hospitalization of patients, except those with debilitating joint disease, atrioventricular block and risk of cardiac syncope, neurological manifestations. The Infectious Diseases Society of America has brought significant changes in the treatment of Lyme disease. Effective therapeutic measures aimed to prevent the disease by a single dose of doxycycline, 200 mg, within 72 hours after the tick bite, an oral therapy for 30 days for the first stage (doxycycline for patients older than 8 years, except pregnant women, 3g/zi amoxicillin, erythromycin, cefuroxime) [3, 4] and hydroxychloroquine for nonresponsive forms [5, 6]. For neurological Lyme diseases: therapy with ceftriaxone is recommended, 14-28 days for encephalitis, encephalopathy [7]. Fibromyalgia requires administration of ceftriaxone 2g/day, 30 days followed by administration of doxycycline 200mg/day, 60 days.

### AIM OF STUDY

We proposed to make an epidemiological, biological, clinical and therapeutic analyze of hospitalized cases in the Department of Infectious Diseases County Hospital Sibiu between 2009-2010.

### MATERIALS AND METHODS

We performed a prospective study including 102 cases admitted in 2009-2011 Department of Clinical Infectious Diseases County Hospital Sibiu, serologically confirmed Lyme disease, which we analyzed in terms of epidemiological, clinical, biologic and therapeutic.

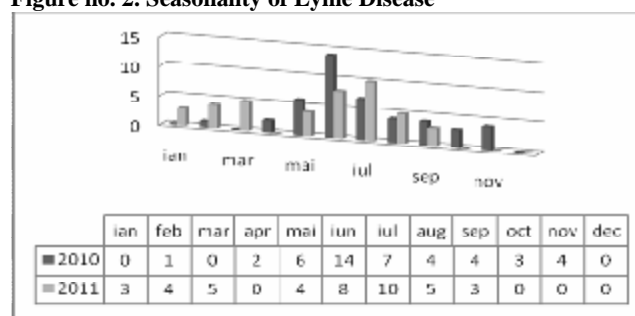
### RESULTS AND DISCUSSION

In 2009, 15 patients were hospitalized diagnosed with Lyme D., in 2010-45 cases and 42 cases in 2011 until 1st September. We mention that in 2010 in Sibiu were diagnosed 69 patients serologically, some of them treated as outpatients and another 60 cases with recognized occupational risk (rangers) confirm the private practice. According to data provided by the CNSCBT in 2010 Sibiu County had the highest incidence (see fig.no.1) Of the 102 hospitalized cases, 63 cases were diagnosed at women, 39 male gender (sex ratio 1:1.61), 31 cases in rural areas and urban areas for 71 cases. Mean age was 47.99 years with extremes at 18-85 years. Most cases occurred in the summer months (June and July) of 2010-2011, the cases hospitalized in autumn and winter months belonging to stages II and III of borreliosis (see fig.no.2)

**Figure no. 1. Incidence of Lyme disease in 2010 (Source CNSCBT)**



**Figure no. 2. Seasonality of Lyme Disease**



Lyme disease was associated with cardiovascular diseases in 21 cases, digestive diseases (chronic hepatitis, gallstones, ulcer), exceptional cancer, thyroid diseases, kidney lithiasis, 1 case was diagnosed and treated for poliartthritis, 2 cases of fibromyalgia (see fig.no.3).

**Figure no. 3. Lyme disease associated diseases**

Diabetes	3
Chronic hepatitis B / C	5
Acute cholecystitis	5
Urolithiasis	4
Thyroid pathology	3
Poliartthritis	1
Cancer	2
Gastroduodenal ulcer	5

79 patients (77.45%) were recognized the tick bite and 67 (65.68%) of these patients recognized the migratory erythema, respectively on the chest 11, cephalic extremity 9, 24 lower limbs, upper limbs 3, lomosacrat, groin, buttocks 8 cases, 5 patients had multiple lesions (see fig no 4). Other events associated with the first stage: fever 15 cases, satellite lymph nodes 16 cases, muscle pain (22), pruritus (10), asthenia (47), vertigo (35), headache (44), dyspeptic symptoms (1), polymyositis (6) -see fig.no.5.

**Figure no. 4. The Location of the erythema**

Location	Case
Chest	11
armpit	1
Upper limb	3
Cephalic extremity	9
Abdomen	7
Lower limb	24
Multiple lesions	5
lomosacrat, groin, buttocks	8

The second stage was diagnosed at 24 patients with articular manifestations but also with cardiovascular diseases (6 cases). The early joint manifestation was 1-6 months after the

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bite at 9 patients; 6 patients had joint pain at 6-12 months, 9 patients had other symptoms after the first year.

**Figure. no. 5. Associated symptoms with stage I**

Fever	15
Mialgy	22
Pruritus	10
Asthenia	47
Vertigo	35
Headache	44
Dyspeptic symptoms	1
Satellite lymph nodes (armpit, retroauricular, groin, suboccipital)	16

5 patients experienced cardiovascular events: sinus bradycardia in 3 cases, a case bifascicular block, sinus tachycardia at 1 case. We suppose that cardiovascular manifestation are not always diagnosed, most patients are hospitalized in cardiology are not serological investigated for Lyme disease.

Neurological manifestations was present in 37 patients, the most severe being two cases with meningitis, 6 patients with demyelinating lesions confirmed by MRI and motor deficit, 1 ischemic stroke, optic neuritis (4 cases). 15 patients had paresthesias and in 5 cases rahialgy. From the biological point of view most patients had normal blood counts (only 3 cases had leukopenia, 6 leukocytosis), 26 patients with elevated CRP, ESR. We found the presence of inflammatory syndrome associated with stage II with joint manifestations.

Treatment of Lyme disease was performed with aminopeniciline in 49 cases, cefuroxime and ceftriaxone in 17 cases, doxycycline was administered to 5 patients in primary stage as monotherapy or as consolidation in another 30 cases.

### CONCLUSIONS

Lyme disease remains underdiagnosed, only cases that recognize tick bites requiring medical attention. 50% of patients that request health care are in stage II and III evolution ,occupationally exposed persons are certainly in an large number, some of them have the infection with *Borrelia burgdorferi*. Making the serology for Lyme disease should be a routine performed for patients with fibromyalgia, rheumatoid arthritis negative serology but also at young patients who have unexplained arhythmias or myocarditis.

Preventive attitude, namely the introduction of vaccination on the ground thinks it would be the best approach in limiting cases.

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