

Iwona Paradowska-Stankiewicz, Irena Chrześcijańska

LYME DISEASE IN POLAND IN 2011

Department of Epidemiology, National Institute of Public Health – National Institute of Hygiene in Warsaw

ABSTRACT

INTRODUCTION. In Poland registration of all cases of Lyme disease is conducted by Epidemiological Unit of National Institute of Public Health – National Institute of Hygiene. Most cases of Lyme disease occur in the North- East region of Poland; however it is important to note that the disease is no longer solely a problem of this region of Poland.

OBJECTIVES. The aim of this work is the assessment of the epidemiological situation of Lyme disease in Poland in 2011 as compared to the situation in the previous years.

MATERIALS AND METHODS. Assessment of the epidemiological situation of Lyme disease in Poland was made on the basis of an analysis of individual notifications of suspected Lyme disease submitted to NIZP-NIH by the Provincial Sanitary- Epidemiological stations; as well as data from “Infectious diseases and poisoning in Poland in 2011” bulletin, and “Preventative vaccination in Poland in 2011” bulletin (MP Czarkowski and Co, Warsaw 2012, NIZP- PZH, GIS).

RESULTS. In 2011 there were 9 157 registered cases of Lyme disease and it is 2% higher than in the previous year. The overall incidence in the country amounted 23.8 per 100,000 population. The highest recorded in Podlaskie province 75.5 per 100,000 population. 2091 people were hospitalized due to Lyme disease.

SUMMARY AND CONCLUSIONS. In 2011 there was a tendency to slow down/inhibit the incidence of Lyme disease. The registered number of cases was comparable to the previous year. There is still fairly low percentage of confirmed cases by performing diagnostic test Western blot method.

Key words: *Lyme disease, epidemiology, Poland, 2011.*

INTRODUCTION

Lyme disease is tick-born multi-organ infectious disease transmitted to humans by the bite of infected tick of the species *Ixodes*. Registration of cases of Lyme disease is conducted by Epidemiological Unit of National Institute of Public Health – National Institute of Hygiene from 1996. The number of recorded cases then amounted to 751, and incidence rate 1.9 per 100,000 population, and systematically continued to increase till 2009. Most cases of Lyme disease occur in the North- East region of Poland (Graph 1. Lyme disease in Poland between 1998-2011. Incidence rate per 100,000 population)

AIM

The aim of this work is the assessment of the epidemiological situation of Lyme disease in Poland in 2011 as compared to the situation in the previous years.

MATERIALS AND METHODS

Assessment of the epidemiological situation of Lyme disease in Poland was made on the basis of an analysis of individual notifications of suspected Lyme disease submitted to NIZP-NIH by the Provincial

Sanitary- Epidemiological stations; as well as data from “Infectious diseases and poisoning in Poland in 2011” bulletin, and “Preventative vaccination in Poland in 2011” bulletin (MP Czarkowski and Co, Warsaw 2012, NIZP- PZH, GIS). Classification for Lyme disease cases in 2011 was based on case definitions developed for epidemiological surveillance in years 2009-2011 (“Definitions of infectious disease cases for epidemiological surveillance” 2011, Department of Epidemiology NIZP-PZH). According to formal classification cases that were confirmed and suspected were isolated. Suspected cases were classified if a person was fulfilling clinical criteria for late phase of the disease or if the person was excluded for other reason, while confirmed case was a person meeting the criteria for an early phase of the disease without laboratory confirmation, or every person who fulfilled clinical and laboratory criteria. Every person who has symptoms of late or early phase of the disease fulfils clinical criteria, however laboratory criteria include:

- For all for all types of Lyme disease- isolation of *Borrelia burgdorferi* spirochetetes from clinical specimen
- For bone- joint type- high titre of specific IgG antibodies
- For neuroborreliosis- demonstration of local synthesis of specific antibodies in central nervous system and/or significant increase of specific antibodies in serum
- For cardio- vascular borreliosis and lymphocytic – significant increase of specific antibodies in serum.

It is recommended to confirm the antibodies detected by Western blot test.

RESULTS

In 2011 there were 9 157 registered cases of Lyme disease and it is 2% higher than in the previous year (Table 1 Lyme disease in Poland 2009-2011. Number of identified cases and incidence rate per 100,000 population according to region). The overall incidence in the country amounted 23.8 per 100,000 population. Additionally there was considerable variation in incidence rate according to territory; from 5.3 in Wielkopolskie province to 75.7 in Podlaskie voivodeship (Table 1 Lyme disease in Poland 2009-2011. Number of identified cases and incidence rate per 100,000 population according to region). In 2011 the numbers of cases in following provinces were: Śląskie, Podlaskie, Mazowieckie, and Lubelskie accounted to 47% of all cases in the country. Compared to year 2010, there was decrease in incidence of the disease- the largest in Warmińsko-Mazurskie province by 102 incidences and in Wielkopolskie by 73. The highest incidence rate of the disease was recorded in Śląskie voivodeship – increase by 199 cases. In an overall number of cases 58% incidences were diagnosed by laboratory tests in accordance with type of disease definition, in this 27.1% by Western blot test. From the surveys submitted by Sanitary- Epidemiological stations to Department of Epidemiology NIZP- PZH it can be concluded that in 2011 similarly to previous years more than half cases of Lyme disease were among city population. In majority it afflicted retirees as well as white collar workers and manual workers up to 21%. Whereas among foresters and farmers compared to other professions the incidence rate was relatively low and respectively amounted to

Table I. Lyme disease in Poland in 2009-2011. Number of cases and incidence per 100,000 population by province

Provinces	2009		2010		2011	
	cases	incidence	cases	incidence	cases	incidence
POLAND	10 329	27.1	9 003	23.6	9 157	23.8
1. Dolnośląskie	801	27.8	558	19.4	658	22.6
2. Kujawsko-pomorskie	378	18.3	356	17.2	327	15.6
3. Lubelskie	784	36.3	739	34.3	848	39
4. Lubuskie	283	28	357	35.3	294	28.7
5. Łódzkie	347	13.6	214	8.4	228	9
6. Małopolskie	1045	31.7	767	23.2	724	21.7
7. Mazowieckie	878	16.8	902	17.2	840	15.9
8. Opolskie	346	33.5	301	29.2	338	33.3
9. Podkarpackie	659	31.4	673	32	703	33
10. Podlaskie	1358	114	904	76	910	75.7
11. Pomorskie	179	8	138	6.2	206	9
12. Śląskie	1766	38	1520	32.8	1719	37.1
13. Świętokrzyskie	163	12.8	179	14.1	155	12.1
14. Warmińsko-mazurskie	754	52.8	884	61.9	782	53.8
15. Wielkopolskie	349	10.3	256	7.5	183	5.3
16. Zachodniopomorskie	239	14.1	255	15.1	242	14

Source: Questionnaires of cases sent to NIPH-NIH by Voivodeship Sanitary and Epidemiological Stations

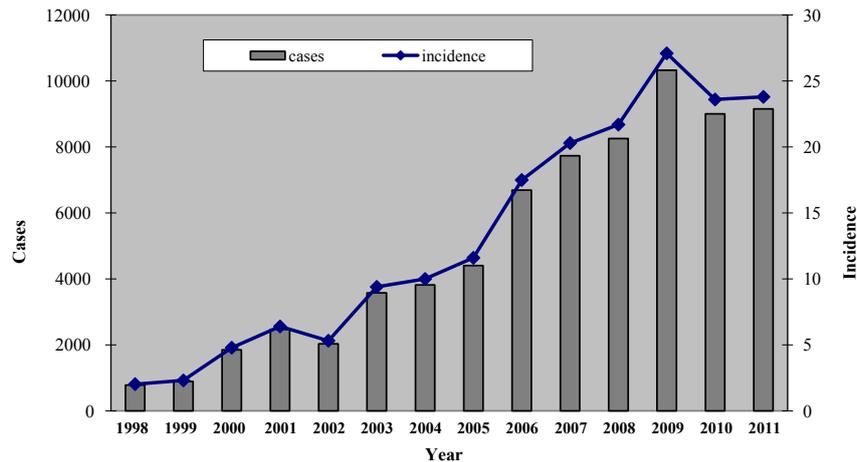


Fig. 1. Lyme disease in Poland in 1998-2011. Incidence per 100,000 population

2.2% and 5.7%. The most cases of disease in 2011 similarly to previous years affected adults >30 years old and older adults, in total of 84% people. Furthermore women contracted the disease more often than men; 59% of all reported cases.

In 2011 skin changes occurred in 76.5% of patients, demonstrated by erythema, redness, and/or swelling, furthermore in 0.04% of patients late skin symptoms occurred demonstrating by returning erythema; change of skin texture such as nodule or rash. Symptoms of joint inflammation and swelling occurred in 21.0% of patients. Cardio-vascular symptoms such as arrhythmia, atrioventricular block and inflammation of the myocardium occurred in 0.1% of patients. Among the central nervous system symptoms which occurred in 0.6% of patients, dominated meningitis, encephalitis and myelitis suggestive of disease occurrence in the nervous system. In all these patients the diagnosis was confirmed by positive test result of cerebrospinal fluid. In addition in 5.8% of patients peripheral nervous system symptoms were recorded. These were: facial palsy, ophthalmoplegia, radicular syndrome as well as other changes referred to generally as neuro-pathological.

MICROBIOLOGICAL DIAGNOSIS OF LYME DISEASE

Microbiological diagnosis of borreliosis plays a vital role in diagnosis of Lyme disease. Currently ELISA test detects IgM and IgG class antibodies. Due to the possibility of obtaining false positive result (test is

characterised by high sensitivity at a lower specificity) two phase diagnostic protocol is used including ELISA test which if the result is positive or dubious, Western blot test is used to confirm the diagnosis.

In 2011 positive serological test results were obtained in 51% of patients suspected of contacting Lyme disease. On 16.3% of these patients Western blot test was used to confirm the diagnosis. It should be noted that in a patient with spreading erythema diagnosis is based only on clinical symptoms, without a need of serological confirmation.

In 2011 Doctors used tetracycline antibiotics and penicillin based antibiotics. In 2011, 2091 (22.8%) people were hospitalized due to Lyme disease.

SUMMARY AND CONCLUSION

In 2011 just as in the previous year there was a tendency to decrease in numbers of cases of Lyme disease. The confirming diagnostic Western blot test is still performed in a reasonably low percentage of research.

Received: 18.03.2013

Accepted for publication: 7.05.2013

Address for correspondence:

Dr med. Iwona Paradowska-Stankiewicz

Zakład Epidemiologii

Narodowy Instytut Zdrowia Publicznego-Państwowy

Zakład Higieny

Ul. Chocimska 24, 00-791 Warszawa

e-mail: istankiewicz@pzh.gov.pl