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CLINICO-BIOLOGICAL ASPECTS IN HUMAN NEUROBORRELIOSIS

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Abstract: *The study was conducted on a group of 32 patients hospitalized with Lyme disease in 2007-2011, at the Hospital of Infectious Diseases and Neurology Hospital of Brasov, monitoring only those patients with neurological manifestations that have been pursued clinical and biological features, imaging found in various stages of the disease evolution. Neurologic examination have revealed a variety of clinical signs, most people cast more than one neurological manifestation, with a varied clinical picture and age distribution. Age group most affected was over 40 years, migratory erythema, being present at only 50% of patients at onset, type IgG ELISA serology, being present in 62% of patients with long neuroboreliozis which confirms the evolution of the disease.*

Key words: *Lyme disease, clinico-biological, neuroboreliozis, migratory erythema.*

1. Introduction

Lyme disease is a multisystem inflammatory disease, with uneven geographical distribution and seasonal occurrence of cases, influenced by environmental conditions, the climatic changes, the presence of vegetation, the people in outdoor activities and uneven due to the presence of different Borrelia genospecies, the most common vector-borne disease being the tick.

Romania belongs to countries with favorable climate for infection.

Like other infections transmitted by spirochetes, Lyme disease evolves in stages with a wide range of signs and symptoms of each stage: localized infection with erythema migrans accompanied by flu-like symptoms, fever, headache, myalgia, fatigue, with the emergence of disseminated infection in weeks/months from the onset of the disease neurological and cardiac manifestations, about 15% of patients and persistence infection, when patients develop chronic arthritis, chronic cardiac or neurological manifestations.

2. Ojectives

Monitoring only those patients with neurological manifestations that have been pursued clinical and biological features, imaging found in various stages of the disease evolution.

3. Material and Methods

The study was carried out on a sample of 32 patients diagnosed with Lyme disease in the period 2007-2011, at the "Infectious

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Diseases Hospital" and at "Brasov Neurology Hospital".

Of those 32 patients were monitored only those with neurological manifestations of the disease, 8 patients with ages ranging between 15 and 59 years, originating both in urban and rural areas.

In the study were collected by common characteristics, such as presence or absence of neurological manifestations, rash, serology, presence or absence of inflammatory syndrome.

4. Results and Discussions

The age group most affected was that of more than 40 years, including and a minor patient with impaired neurological condition in the Lyme disease.

4.1. Clinical manifestations

Clinical manifestations described in literature in the 2 or 3 specific-stage of disease, we have found at our patients, but non-uniformly distributed.

They were:

- Arthralgies;
- Myalgia;
- Paraesthesia;
- Motility disorders;
- Paralyses.

Ring migratory erythema, highly suggestive clinical diagnosis of Lyme disease. Appears in the coming weeks the bite, centering gate.

The lesion is painless ,unitching, extensive dermatitis manifests as a centrifuge, with possible central pallor ("sign of shooting").

Marginal erythema persists ("ring").

It may have color variations. 50% of patients had onset rash.

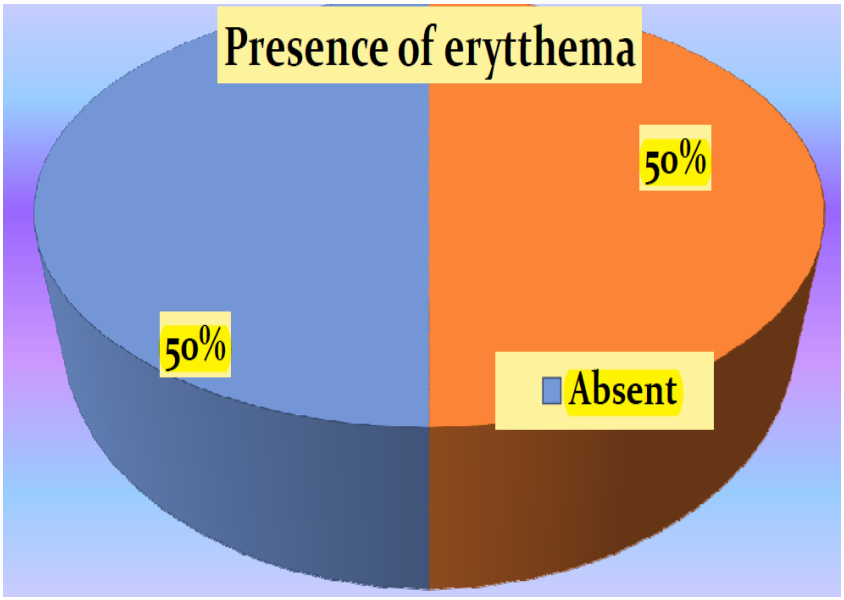

Fig.1. *Presence of erythema*

4.2. Serologic confirmation of disease,

Borrelia antibodies dosed the Ig M type b or IgG in serum by two methods: ELISA and Western Bloot (confirmation).

This type of Ig M antibodies is correlated with relatively recent exposure to a tick bite, IgG antibodies appear several years late but persists even after healing.

We see cases of study associated with neurological predominant IgG antibodies,which confirms that the evolution occurring neurological disease long untreated.

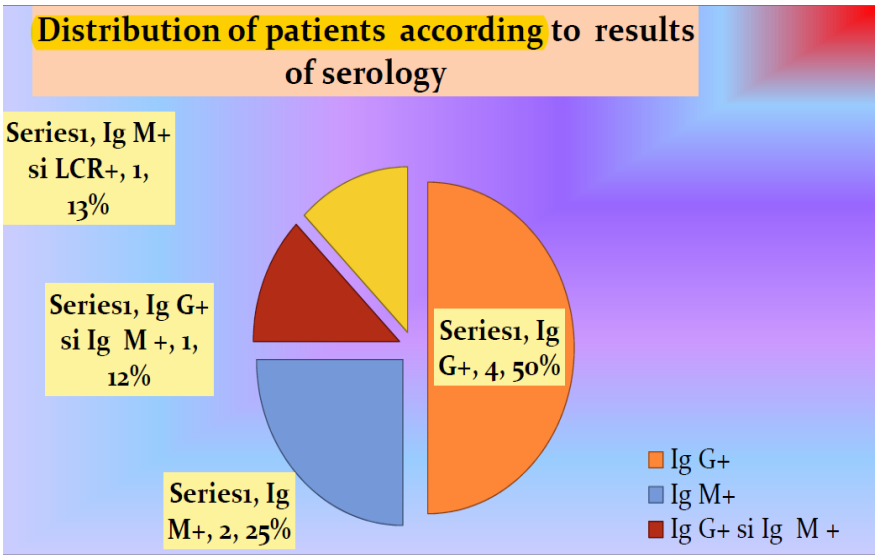

Fig.2. *Distribution of patients according to results of serology*

4.3. Inflammatory Syndrome

Neuroboreliosis mechanism is involved in acute inflammation, leading to degeneration of the central and peripheral nervous system structures. Thus, we see this inflammatory syndrome in our patients.

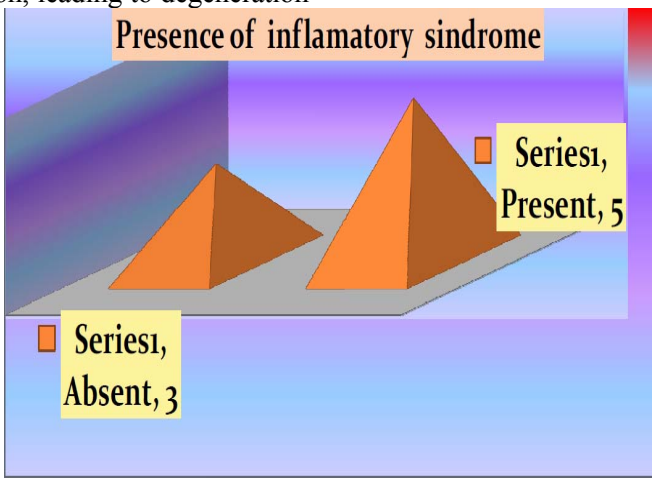

Fig.3. *Presence of inflamatory sindrome*

4.4. Neurological manifestations

60% of untreated patients develop normally arthritis and chronic neurological manifestations.

The study found that the most common neurological manifestations were:

- facial paresis
- paresthesia
- living ROT
- cutaneous hypoaesthesia
- static and walking disorders
- spastic paraparesis

We observed associations of several manifestations at the same patient.

- One of the patients had a rapidly progressive evolving towards death.
- Cranial CT scan were highlighted:
  - multiple intracerebral space substitutionary processes or bilateral infratentorial hiperdensity
  - space substitutionary processes were round, unomogeneous, the largest having a diameter of 2.3 cm, located in the pontocerebellum.

4.5. Antibiotic treatment

Is imperative in neurological disease stage.

- Most of the guidelines proposed administration in the course of 14 days Ceftriaxon or Penicillin i.v., with similar efficacy.
- A recent study carried out in Norway emphasize the effectiveness of orally administration of Doxiciclin, Ceftriaxon i.v. in Neuroboreliosis treatment at adults.

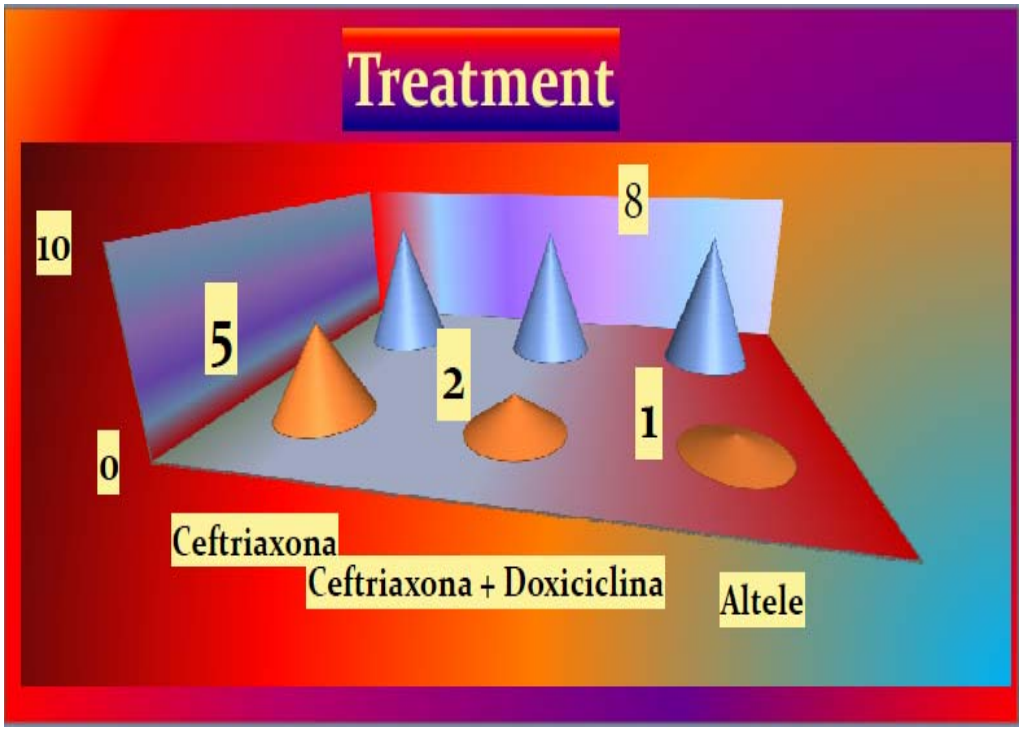

Fig. 4. *Antibiotic treatment*

Infection can be on 3 different Borrelia genospecies: Borrelia. burgdorferi, Borrelia garinii, Borrelia afzeii.

Borrelia burgdorferi, the most common causative agent is a spirochete with a small genome, but contains gene sequences that encode more than one percent of lipoproteins. Lyme disease progresses in three stages with signs and symptoms:

Stage I (localized infection) up to a month of the prick appears migrans erythema accompanied by flu-like symptoms:

- fever
- Headache
- Myalgia
- fatigue.

Stage II (disseminated infection):

- appearance in weeks / months after the onset of neurological and cardiac disease, about 15% of patients.

Stage III (persistent infection) patients develop chronic pains such as: chronic arthritis or chronic neurological manifestations.

Geographical distribution is not uniform and is due to this unequal different genospecies of Borrelia.

Seasonal occurrence of cases of Lyme disease is influenced by:

• Environmental conditions (temperature, humidity)
• The climatic changes,
• The presence of vegetation,
• The people in outdoor activities.

Romania belongs to countries with favorable climate of infection transmission.

Lyme disease is a multisystem inflammatory disease, relatively recent, with global spread the most common vector-borne disease beeing the tick.

In Europe the most common tick species is Ixodes ricinus.

This is very small and may go unnoticed, so many patients do not correlate with early signs exposure.

5. Conclusions

1. The age group most affected by the neuroboreliosis was that for over 40 years.
2. Migratory erythema, Lyme disease specific sign was present in 50% of patients at the onset of the disease, but it is possible that the other half will not be linked with this rash at time of the bite tick.
3. We see this type of IgG antibodies at 62% of patients which confirms the long evolution of the disease.
4. Inflammatory syndrome, as the primary mechanism in neuroboreliosis, was present at 62,5% of the patients included in the study.
5. Neurological examination revealed a variety of clinical signs, most patients with Lyme disease received more than one neurological manifestation.
6. Clinical manifestations described of our patients were varied and with uneven distribution.

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