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LYME DISEASE (BORRELIOSIS)

Mrs. SONIA NR,

ASSOCIATE PROFESSOR, T JOHN COLLEGE OF NURSING, BANGALORE

ABSTRACT

*Lyme disease one of the most common vector-borne disease caused by the bacteria, *Borrelia burgdorferi*, first recognized in the year 1975 when many children were diagnosed as Juvenile rheumatoid arthritis in a town named lyme. Researchers found that bites from infected deer ticks were responsible for the outbreak of arthritis. Although Lyme disease is most commonly found in the United States, it is also prevalent in parts of Europe and Asia. This disease can lead to a range of symptoms, making the individuals to recognize its signs early for better treatment.*

Keywords: lyme, borreliosis, ticks, CDC

INTRODUCTION

Lyme disease is a bacterial tick-borne illness caused by *Borrelia burgdorferi*. It mainly affects humans and is transmitted through the bite of infected black-legged ticks, also known as deer ticks. The disease initially starts with symptoms similar to flu and if untreated affects joints, heart and nervous system leading to other major serious complications.

EPIDEMIOLOGY

- The CDC estimates around 476,000 cases per year in US
- Change in the climate, afforestation and human exposure to tick habitats have increased the incidence of the disease
- Most cases occur between May and October, mostly in the month of June and July when ticks are most active and increase outdoor activities

MODE OF TRANSMISSION

Bite of infected black-legged ticks (*Ixodes scapularis*), also known as deer ticks.

CAUSES OF LYME DISEASE

Bacterium *Borrelia burgdorferi*, which is carried by certain species of ticks. These ticks are commonly found in tall grass, and areas with wood and dense vegetation.

INCUBATION PERIOD : 7 to 14 days

THREE STAGES OF LYME DISEASE

1. *Early Localized Stage (3-30 days after the tick bite)*

- Erythema migrans (EM) rash: It appears as a circular, red rash that expands outward, appearance of “bull's-eye”. The rash is typically seen at the site of the tick bite.
- Flu-like symptoms: Fever, chills, fatigue, headache, muscle and joint aches, and swollen lymph nodes.

2. *Early Disseminated Stage (days to weeks after infection)*

- Rashes
- Neurological symptoms: Bell's palsy (facial paralysis), meningitis and numbness or weakness in the limbs.
- Cardiac problems: Lyme carditis affecting the electrical conduction in the heart causing irregular heartbeats (arrhythmias).

3. *Late Disseminated Stage (months to years after infection)*

- Chronic joint pain: Lyme Arthritis, particularly in the knees and other large joints causing pain and swelling
- Neurological problems: cognitive disorders affecting the memory, concentration, and mood, sometimes referred to as "post-treatment Lyme disease syndrome" or "chronic Lyme disease."

DIAGNOSTIC EVALUATION

1. History collection- enquire about possible tick exposure
2. Physical Examination: typical "bull's-eye" rashes
3. Laboratory Tests: Blood tests, including enzyme-linked immunosorbent assay (ELISA) and Western blot, are often used to detect antibodies produced in response to the infection.

TREATMENT

- Antibiotics: such as doxycycline, amoxicillin, or cefuroxime
- Pain management: Nonsteroidal anti-inflammatory drugs (NSAIDs) may be used to relieve joint pain and inflammation associated with Lyme arthritis.

PREVENTION

1. Avoid Tick Habitats: It is beneficial avoiding wooded or grassy areas, especially during peak tick season (spring and summer).
2. Use of Tick Repellents
3. Use of light coloured long sleeved Protective Clothing, pants and socks:
4. Check for Ticks on body, especially in areas like the scalp, behind the ears, armpits, and groin post exposure to areas with grass and wood.
5. Remove Ticks using fine-tipped tweezers. Clean the bite area with aseptic solutions.

CONCLUSION

Lyme disease is one of the serious and treatable illness. When detected early can prevent long-term complications. With proper treatment, most individuals can recover from Lyme disease. Taking proper preventative measures can help reduce the risk of contracting this infection

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