Lyme disease

Health & Medicine

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Lyme disease Lyme disease is an infectious disease caused by the bacteria, Borrelia burgdorferi(B. burgdorferi). This bacterium is found mostly in USA, Europe, Australia, China, Russia and Japan. The bacteria are a spirochete and four genomic species have been identified up till now and are specific for geographic areas. Lyme disease has been identified as the most common vector-borne disease in the state of America and the incidence of this disease is increasing with every year. In 2003, 21, 273 cases were estimated in 45 different districts of U. S. It was also observed that 10% increase in incidence occurred in Columbia as compared to the records of the year 2002 (McPhee et al 2007; Colledge et al 2010). It is transmitted to the humans by the vector, ixodid ticks that belong to the Ixodes ricinus complex. The blacklegged ticks spread the bacteria after biting mice or deer which are already infested with Lyme disease (PubMed Health 2011; McPhee et al 2007). The basic historical perspective of Lyme disease, signs and symptoms of the disease, causes and risk factors, diagnostic and therapeutic strategies and the preventive measures will be discussed in the paper. The first documented report of the occurrence of Lyme disease was made in the town of Old Lyme in Connecticut, U. S. A in the year 1975. Thus, it acquired the disease acquired the name after the town. Lyme disease is also called Lyme Borreliosis, after the name of its causative bacterium. Important risk factors for the increased frequency of Lyme disease infection include outdoor activities which expose the individual to ticks for instance gardening or hunting. Unhygienic pets with tick’s infestation or excessive outdoor walking in high grasses increases the risk for Lyme disease (PubMed Health 2011; McPhee et al 2007). The clinical features of the disease are divided into three stages- early localized disease, early disseminated disease and late disease.

In the first stage, a bull’s eye lesion called erythema migrans is formed at the site of tick bite and has a flat or slightly raised red appearance. Other flu-like symptoms develop including fever, chills and myalgias and develop in 50% of the affected individuals. In 44% of the patients, dissemination of the bacteria occurs through blood or lymphatics leading to systemic involvement especially the musculoskeletal, skin and neurological involvement. Secondary lesions of skin, migratory joint and muscle pains, fatigue and malaise are common. Involvement of heart occurs in 4-10% patients leading to arrhythmias, heart block or myopericarditis. Neurological involvement (10-20%) causes head and neck stiffness due to lymphocytic meningitis, cranial nerve palsies and peripheral neuropathy. Late manifestations include polyneuritis, arthritis and encephalopathy. These late manifestations occur after months and years of initial infection. Late skin involvement results in acrodermatitis chronicum atrophicans. Symptoms like speech problems, numbness and tingling and abnormal muscle movements occur (McPhee et al 2007; Colledge et al 2010). The diagnosis is made on the basis of clinical features, physical findings and the history of exposure to the infected ticks. In the early disease, laboratory tests are not significant. Immunoflorescence, ELISA and antibody titers can give false results in the course of the disease. To confirm the diagnosis, immunoblot (Western blot) technique should be employed. PCR technique for microorganism DNA detection can be performed on urine, blood, CSF and skin biopsy samples. ECG, echocardiogram, spinal tap an MRI of brain are more specifc tests in case of systemic involvement (Longmore et al 2010; Colledge et al 2010; PubMed Health 2011). The patients who develop symptoms of early disease like erythema maigrans should be treated with antibiotics even if the skin rash

resolves as it can progress later into systemic manifestations. A fourteen day course with doxycycline or amoxicillin should be started. Affected individuals who are allergic to this treatment or pregnant women should be given a fourteen-day course of erythromycin or cefuroxime axetil (Colledge et al 2010). For later complications, higher doses of benzyl penicillin or ceftriaxone should be given through intravenous route (Longmore et al 2010). Inflammation is also an important part of Lyme disease, and can be reduced through proteolytic enzymes, hydrotherapy, diet, massage and fish oil. Natural immune support for the patients is also important and can be provided through Vitamin C and Vitamin D supplements (Strasheim 2009). Preventive measures include simple cautionary steps like avoiding exposure to tick-infested areas, covering exposed skin parts, using repellants and inspecting for ticks after exposure to such area. Environmental control of ticks should also be encouraged. Prophylactic antibiotics should be administered only to those individuals who line in highly endemic areas. A recombinant vaccine (LYMErix, SmithKline Beecham) have shown a 75% efficacy rate. However, a suspected adverse effect of autoimmune arthritis has caused the withdrawal of the vaccine from the market (McPhee et al 2007). Thorough inspection of clothes and exposed body parts is advised after coming from tick-infested areas. Taking a bath immediately to remove the ticks is also helpful (PubMed Health 2011). Lyme disease is one of the commonest infectious diseases and especially in U. S. A and the European countries. Transmitted by the ticks, the disease has a clinical picture divided into three stages. Diagnosis is based on clinical findings, history and specific tests if the systemic involvement occurs. Management is majorly based on antibiotic treatment and natural therapies for immune support and reduction

of inflammation. Preventive measures should be adapted especially in endemic areas to reduce the incidence of Lyme disease. Works Cited

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