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Lyme Disease
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Introduction
Lyme disease is the most common vector borne illness found in the United States. Each year, 30,000 people are diagnosed with the disease, with many more cases going unreported (Centers for Disease Control and Prevention, 2014). Lyme disease is spread by the black-legged tick. The development of the disease is due to the presence of Borrelia burgdorferi, the bacteria that infects the tick. This bacteria is transmitted to humans when the tick feeds on humans. Lyme disease is a chronic disease that can affect any organ system throughout the body. This is why it is important to diagnose Lyme disease early in order to prevent long-term effects. Understanding how this bacteria has adapted to human tissues is key to the development of treatments for the disease.

The beginning stages of Lyme disease is most recognized as the localized rash called erythema migrans. It is also commonly called “bull’s eye rash” due to its physical appearance. The rash forms after about 3-5 days after the tick bite and is around 5 cm in diameter but may spread up to around 30 cm (Pearson, 2015). The early stage of the disease is the easiest time to diagnose the disease when erythema migrans is present. It is the classic symptom of Lyme disease but last decades as the individual progresses to the later stages of the infection. Some key symptoms include forgetfulness not indicating or painful sensations, the presence of general malaise and fatigue, and general malaise. Secondary lesions of erythema migrans may also be present (Pearson, 2015). Many other body systems begin to be affected as Borrelia burgdorferi migrates throughout the tissues. This can cause symptoms such as headache, muscle aches, joint pain, and general malaise. Some other symptoms that can occur are fatigue and weight loss. Early diagnosis is crucial as the disease can be difficult to diagnose once it has reached the later stages. Pearson (2015) describes these symptoms as encephalopathy, headache, mood changes, peripheral neuropathy, and even blood-pressure changes (p. 9). Collagen rich tissues are usually the site of chronic disease including the eyes, nerve tissues and joints causing many sensory and motor deficits (Pearson, 2015).

Disease Process/Signs and Symptoms
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Significance of Pathophysiology
The severity of the disease is based entirely on how quickly Lyme disease is recognized and treated along with where the bacteria have colonized in the body. Not everyone presents with the same symptoms. Borrelia burgdorferi has the ability to evade recognition by the immune system, allowing it to evade recognition by the immune system and the body. This makes it difficult to diagnose Lyme disease. However, the disease is relatively easy to diagnose in the early stages. Diagnosis is made through lab results identifying the presence of Borrelia burgdorferi. In the later stages, diagnosis is more difficult once it has reached the later stages. Antibodies are used with controversy that usually point to the ineffective treatment of Lyme disease. Symptoms can be managed with anti-inflammatories, and other treatments based on which bodily system is involved. Unfortunately, there is still much unknown about the actions of the B. burgdorferi in the late stages, as there is no set standard of care for the chronic form (Halpern, 2014). This makes it difficult to diagnose Lyme disease. Research shows that many patients do not recognize the early stages and continue to present with symptoms. This is why it is important to educate the public on how to recognize Lyme disease.

Implications for Nursing Care
The most important aspect of care is early treatment of the disease, but first the diagnosis must be made. Diagnosis can be made in one of two ways, usually in a two-step combination of the tests. These tests are the enzyme-linked immunosorbent assay, commonly called ELISA, and the Western blot test. The presentation of erythema migrans rash along with patience history of outdoor exposures to ticks should indicate the presence of infection in the host. This ratio allows for prompt diagnosis even before the lab results confirm diagnosis (Kowalski, Tata, Berth, Mathiason, & Agger, 2010). As stated earlier, it is difficult to diagnose Lyme disease since the healthcare provider only has subjective symptoms that mimic other diseases. This is why it is important to conduct a thorough history to confirm the diagnosis and symptomatology of the patient. This is accomplished through the use of focused history including knowledge of geographical hotspots for prevalence of Lyme disease.

The early stage of Lyme disease is easily treated with a short course of antibiotics. This is when first symptoms of fever and erythema migrans rash are present. The two common antibiotics used to fight the infection are doxycycline or amoxicillin. Research shows that in the early stages of the disease antibiotic therapy is more effective and less side effects are seen. This is when preventative measures are a priority. The treatment needs to be administered even before the lab results are confirmed. The treatment needs to be continued for a number of days. This is why it is important to continue monitoring the patient for progression of the infection. In the later stages, diagnosis is more difficult once it has reached the later stages. Antibodies are used with controversy that usually point to the ineffective treatment of Lyme disease. Symptoms can be managed with anti-inflammatories, and other treatments based on which bodily system is involved. Unfortunately, there is still much unknown about the actions of the B. burgdorferi in the late stages, as there is no set standard of care for the chronic form (Halpern, 2014). This makes it difficult to diagnose Lyme disease. Research shows that many patients do not recognize the early stages and continue to present with symptoms. This is why it is important to educate the public on how to recognize Lyme disease.

Conclusion
Lyme disease is a mysterious illness that continues to outsmart those in the medical professional due to its ability to evade human immune system. Lyme disease needs to be diagnosed early in order to prevent long-term effects. Lyme disease has many symptoms and the two main symptoms of the disease are a rash and fever. Diagnosis is made through lab results identifying the presence of Borrelia burgdorferi. In the later stages, diagnosis is more difficult once it has reached the later stages. Antibodies are used with controversy that usually point to the ineffective treatment of Lyme disease. Symptoms can be managed with anti-inflammatories, and other treatments based on which bodily system is involved. Unfortunately, there is still much unknown about the actions of the B. burgdorferi in the late stages, as there is no set standard of care for the chronic form (Halpern, 2014). This makes it difficult to diagnose Lyme disease. Research shows that many patients do not recognize the early stages and continue to present with symptoms. This is why it is important to educate the public on how to recognize Lyme disease.

References