



**LYME DISEASE IN TURKEY**

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**ABSTRACT**

Although Lyme Disease is proposed to be endemic by World Health Organisation (WHO), health professionals from Turkey still ignored this situation. Neither Ministry of Health of Republic of Turkey nor medical doctors know anything about Lyme Disease, so Lyme patients are almost always misdiagnosed and they can't get the appropriate treatment. On the other hand some seropositivity studies made by researchers are worrisome. According these studies, seropositivity in random blood samples found 75% positive in Hatay, 22.1 – 35.9% positive in Antalya, 35.8% positive in Bilecik, 18.75% positive in Van, 18.8% positive in Denizli, 13.7-14.8% positive in Bolu, 3.28 – 17% positive in Isparta, 10.9% positive in Duzce, 7.8% positive in Izmir, 6.6% positive in Trabzon, 6% positive in Ankara, 4% positive in Samsun, 3.3% positive in Sinop and 2.5% positive in Erzurum. Additionally seropositivity in animal samples from Turkey found 23-78% positive in dogs, 6% positive in horses and 13.5% positive in cattle. Finally according to studies on ticks, 15.9% of ticks in Sinop were found to be carrying the *Borrelia*, while 15.58-35.8% in Thrace and 3-55% in Istanbul. According to genomic studies *Borrelia burgdorferi* sensu stricto, *B. garinii*, *B. afzelii*, *B. valaisiana* and *B. lusitaniae* strains from Turkey are very similar (97-100%) to European strains. As a result it can be clearly said that Lyme Disease is extremely overlooked and too many people are misdiagnosed in Turkey.

**KEYWORDS:** Lyme disease, Turkey, Endemic, Seropositivity.

**INTRODUCTION**

Lyme disease is a chronic multi-system infectious disorder and the most frequent infectious arthropod-borne disease found both Europe and the United States. *Borrelia burgdorferi* is the causative agent of Lyme disease, which affects an estimated 300,000 people annually in the United States. In August 2015, CDC researchers revised their estimates upwards once again, showing a 320% increase in Lyme cases in the past 20 years.<sup>[1]</sup>

When treated early, the disease usually resolves, but when left untreated, it can result in symptoms such as arthritis and encephalopathy. Descriptions of new species and variants arises continuously, so the number of species is probably not final. The disease of a great relevance today, and will be even more important tomorrow.

In the beginning of the 2000s, Crimean-Congo Haemorrhagic Fever (CCHF) began to attract public attention in Turkey when people in my country died from this disease. The first Lyme case recorded in Turkey was in 1990.<sup>[2,3]</sup> Since Lyme disease is considered not to be widespread by the medical community, this issue was not

taken into serious consideration. However, an increase in the number of publications is observed since the 2000s.

In our country (Black Sea, Mediterranean-Aegean) a few seropositive results were obtained in serologic screening by Elisa method between 1996 and 2006 and the results are confirmed by IFA and Westernblot. In addition to this it is expressed that the anti-*Borrelia* antibodies are common especially in the risk group of Mediterranean and Marmara region.<sup>[4]</sup>

On the other hand some seropositivity studies made by researchers are worrisome. According these studies, seropositivity in random blood samples found 75% positive in Hatay<sup>[5]</sup>, 22.1 – 35.9% positive in Antalya<sup>[6]</sup>, 35.8% positive in Bilecik<sup>[7]</sup>, 18.75% positive in Van<sup>[8]</sup>, 18.8% positive in Denizli<sup>[9]</sup>, 13.7-14.8% positive in Bolu<sup>[10]</sup>, 3.28 – 17% positive in Isparta<sup>[11]</sup>, 10.9% positive in Duzce<sup>[12]</sup>, 7.8% positive in Izmir<sup>[13]</sup>, 6.6% positive in Trabzon<sup>[14]</sup>, 6% positive in Ankara<sup>[15]</sup>, 4% positive in Samsun<sup>[16]</sup>, 3.3% positive in Sinop<sup>[17]</sup> and 2.5% positive in Erzurum.<sup>[18]</sup>

Additionally seropositivity in animal samples from Turkey found 23-78% positive in dogs, 6% positive in

horses<sup>[19]</sup> and 13,5 % positive in cattle.<sup>[20]</sup> Finally according to studies on ticks, 15,9 % of ticks in Sinop<sup>[21]</sup> were found to be carrying the *Borrelia*, while 15,58-35,8 % in Thrace and 3-55 % in Istanbul.<sup>[4]</sup>

According to genomic studies *Borrelia burgdorferi* sensu stricto, *B. garinii*, *B. afzelii*, *B. valaisiana* and *B. lusitanae* strains from Turkey are very similar (97-100%) to European strains.<sup>[4]</sup> *Borrelia turcica* sp.nova., isolated from the hard tick *Hyalomma aegyptium* in Turkey.<sup>[22]</sup> The reports the PCR detection of *B. spielmanii* in a tick in the city of Istanbul (Turkey) collected while biting a human.<sup>[23]</sup>

The tick fauna of Turkey are consists of 47 species; 39 species from Ixodidae and 8 species from Argasidae.<sup>[24]</sup>

As a result it can be clearly said that Lyme Disease is extremely overlooked and too many people are misdiagnosed in Turkey.

Researchers in Turkey in recent years has published numerous articles about Lyme disease and noteworthy increase in publications on this subject.<sup>[2-11]</sup>

## RESULTS

Scientific studies (Seropositivity rate; 4-75 %) that have been conducted in Turkey especially in recent years, actually proved that Lyme disease is very widespread and endemic in Turkey. Despite these studies, particularly the Ministry of Health officials, the Medical Faculties, and other relevant institutions do not take into account the seriousness of this urgent issue.

For this reason, it is almost impossible to find any medical "Lyme Doctor (LLMD)" that specializes in this disease. Lyme patients are almost always misdiagnosed and they can't get the appropriate treatment.

Moreover, there are no specialized Lyme disease departments in our medical schools and there are no specialized Lyme Treatment Clinics, as well. Our government will not accept that Lyme disease exists in Turkey. We are unfortunately late already.

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