



Letter to the Editor on “Suspicious Index in Lyme Carditis (SILC): Systematic Review and Proposed New Risk Score”

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Dear Editor,

We read with great interest, the recent publication in the *Journal of Clinical Cardiology*, entitled “**Suspicious Index in Lyme Carditis (SILC): Systematic Review and Proposed New Risk Score**”[1]. This is a systematic review of the literature on the patients with Lyme disease who had developed cardiac conduction system dysfunction. The authors have developed a risk scoring model to predict the probability of developing Lyme carditis (LC) based on a pooled analysis of the reported variables in the literature. While the title of this systematic review suggests carditis as the outcome of interest, the primary endpoint has been shown to be the cardiac conduction abnormality (CCA), not carditis which encompasses a broader spectrum of cardiovascular entities. On the other hand, authors have only included studies reporting a high-degree atrioventricular block which narrows their eligibility criteria even more.

The so-called “*Suspicious Index in Lyme Carditis (SILC) score*” has been calculated based on the clinical characteristics of patients with Lyme disease who are at the risk for developing CCA. However, it is well-known that the diagnosis of Lyme diseases and its complication LC relies on a variety of diagnostic criteria such as clinical, laboratory, and in severe cases, histopathology findings [2-3]. Moreover, it has been shown that LC is a common manifestation of early disseminated disease and is clinically supported by accompanying neurological deficits, phenominal erythema migrans, or both [3]. However, the systematic review by Besant et al., seems to undermine such an important association. Additionally, the authors do not discuss the potential role of laboratory findings or histopathologic evaluation in the diagnosis of LC.

Besant et al. explain their rationale for the selected items for the constructed SILC score. Although age < 50 years, male gender, a history of outdoor activity, constitutional symptoms (fever, fatigue, or malaise), recognition of a tick bite, and erythema migrans has been included into the calculation of the SILC score, the rationale for the assigned weight to each item and exclusion of other determining factors remains questionable. For example, it is not clear why nonspecific constitutional symptoms have been given a score of 2 while a history of outdoor activity or living in an endemic region has been given only one point. On the other hand, authors have referred to constitutional symptoms such as fever, malaise, arthralgia, and dyspnea as characteristics of the Lyme disease though these were reported in 28.4% to 39.8% of the patients. Additionally, the article declares that Lyme disease was confirmed by serological study in 97% of the patients but it does not consider a positive serology as an item in the SILC scoring model. The same is true for the type of cardiac conduction disturbances, all of which referred to as a high-degree atrioventricular block with no characteristic definition.

Established guidelines acknowledge that a constellation of constitutional symptoms, erythema migrans rash, and arthralgia in the presence of a history of living in an endemic region or outdoor camping is required for the diagnosis of Lyme disease while cardiac involvement is suspected by abnormal radiographic, electrocardiographic, or echocardiographic findings and confirmed by a positive serology for anti-Lyme antibodies or a positive histology for the cardiac tissue biopsy [2-3]. Unlike the routine practice, the proposed SILC score by Besant et al. does not take into account many of these clinical and laboratory diagnostic criteria and does not properly assign a weight to the SILC items.

Finally, although the clinical courses of patients with manifestations suspicious for the LC were presented in a timely manner in this systematic review, the scoring model seems to

have underestimated the importance of the time interval between a risky encounter for Lyme infection, symptom development, and hospital admission for possible LC. This especially raises a concern when many of the patients with a possible LC presents sub-acutely after inoculation with *Borrelia burgdorferi*.

In summary, although risk calculation models are becoming an important part of our individualized clinical practice, it is extremely crucial to be as inclusive as possible in developing such risk scoring systems to avoid misdiagnosis or mistreatment of the patients with uncertain conditions, such as those with Lyme disease who are at the risk of developing LC.

References:

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