

## New test for early detection of Lyme disease

April 25 2016



MedUni Vienna develops new test for early detection of Lyme disease

As part of the EU "ID Lyme" project, the infection immunology working group at the Institute for Hygiene and Applied Immunology at the Center for Pathophysiology, Infectiology and Immunology at the Medical University of Vienna is working on developing of a new test for early detection of Lyme disease (borreliosis). This will improve the ability to detect an active infection more easily than before so that healthy people with Lyme disease antibodies in their blood do not receive unnecessary antibiotic treatment and so that appropriate treatments can be initiated at an early stage. The antibody tests that are currently available only provide a reliable result 3 - 4 weeks after infection has occurred.



"Unfortunately, the current standard laboratory test is often unable to detect Lyme disease at an <u>early stage</u> of the <u>infection</u>," explains Hannes Stockinger, Head of the Institute for Hygiene and Applied Immunology of the Center for Pathophysiology, Infectionology and Immunology of MedUni Vienna. "On top of that, the current test often interprets a mere antibody reaction as an infection and people are treated with antibiotics unnecessarily, because the infection is way in the past or is already completely resolved."

"Not every tick bite necessarily results in an infection and not every positive Lyme disease test means that infection is present. That's the tricky bit," adds Gerold Stanek from the similarly named Institute and Center at MedUni Vienna and one of the pioneers of research into Lyme disease in Austria. For example, a lot of hunters, who obviously spend a lot of time in woods and meadows, are really healthy, even though they display antibodies to Lyme disease, i.e. they have previously and repeatedly come into contact with it.

## New test allows more accurate and earlier diagnosis

The current test is only able to analyze part of the human immune system, namely the B-cells but not the T-cells, which are needed as helper cells to fight the infection and whose activity indicates the presence of an infection. The MedUni Vienna immunology experts are therefore helping to develop the world's first point-of-care test, which could be used to detect an active infection so that patients could start the appropriate treatment. The test, which is known as the "Ixodes Kit" should be in clinical use in the autumn of 2016, said the scientists, speaking on the occasion of World Immunology Day 2016. Ixodes is the scientific name for hard-bodied ticks.

## Best (April) climate for ticks



Lyme disease is particularly common in Central Europe and in the Scandinavian countries. As a result of global warming, its area of spread is continuously moving northwards. Tick activity is starting earlier and earlier. In Austria itself, we currently have the best climate for ticks, as Stanek emphasizes: "Ticks become active when the ground temperature rises above 7°C, as is now the case in Spring."

So far there is no vaccination available against Lyme disease, such as there is for Tick-Borne Encephalitis (TBE) that is also spread via tick bites. Every year around 70,000 people in Austria develop Lyme disease after being bitten by a deer tick. Approximately one in every four ticks carries Lyme disease. So-called erythema migrans is a sure sign of infection with tick-borne Lyme disease. However, this only occurs in around one third of patients. If the bacterial infection is not detected in good time it can lead to serious problems such as joint inflammation and even very painful infections of the nerve roots resulting in paralysis or memory loss.

Apart from Lyme <u>disease</u> and TBE, ticks also carry other pathogens such as Rickettsia, Babesia, Anaplasma, Francisella tularensis, Bartonella and many others. The researchers and specialists from the Institute for Hygiene and Applied Immunology at the Center for Pathophysiology, Infectiology and Immunology of MedUni Vienna are now conducting a new research project to identify the whole spectrum of pathogens in ticks and to follow the diagnosis and treatment of affected patients. Mateusz Markowicz, the lead investigator, is inviting people who want to take part in the study to come to the Institute out-patient clinic with their ticks. Further details can be found at:

Provided by Medical University of Vienna

Citation: New test for early detection of Lyme disease (2016, April 25) retrieved 27 April 2024



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