Detection of Candidatus Neoehrlichia mikurensis in Ticks of the Grisons Rhine Valley

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Candidatus Neoehrlichia mikurensis - This name was given to a bacterium first described in Japan in 2004. Five years later scientists in Zurich, Switzerland discovered its human pathogenicity. The purpose of this research was to gather information on the occurrence of the bacterium in ticks within the Canton of Grisons (Switzerland), as ticks are regarded to be a potential vector. Ticks were collected efficiently by flagging vegetation (tick dragging) and their DNA was subsequently extracted. The verification from the initial extraction was established by using a conventional PCR to test for tick-DNA, followed by an agarose gel electrophoresis to visualise the obtained DNA. In a second PCR the prior positive samples were screened for Ca. Neoehrlichia mikurensis and again analysed on a agarose gel. A total of 1,558 ticks, solely Ixodes ricinus, were collected. Of these, 560 specimens, pooled into groups of ten, were tested for the questing bacterium. By this downsizing it was only possible to determine the minimal prevalence of Ca. Neoehrlichia mikurensis. For the three sampling sites of this study the global prevalence amounts to >7.5%. This study has achieved the first ever identification of Ca. Neoehrlichia mikurensis in the Canton of Grisons and the third discovery within Switzerland. The result of the minimal prevalence of >7.5% can declare the Grisons Rhine Valley as a risk area for Neoehrlichiosis. The risk of infection or life threatening symptoms would only occur for immunosuppressed people. These findings therefore should be taken into consideration by physicians.

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