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Impervious Density and Borrelia burgdorferi s.l. Seropositivity within the German National Cohort (NAKO)

Inhalt

Introduction
The environment influences tick density and activity. We investigated the effect of varying buffers around the residential address on the association between impervious density and *Borrelia burgdorferi* s.l. seropositivity in NAKO (German National Cohort) participants.
Methods
We included 14,195 participants from four NAKO study centers. Impervious density was dichotomized indicating the presence (<0.3) or the absence (≥0.3) of greenspace at home addresses during baseline examination (2014 –2019). Utilizing an enzyme-linked immunosorbent assay (ELISA) *B. burgdorferi* s.l. antibodies (IgG) were measured in blood samples. Previous analyses showed associations for age, sex and migration background. We performed adjusted hierarchical models with the study centers as random intercept.
Results
We detected an OR of 1.85 (95%-CI 1.39 –2.48) for a 100 m buffer of less imperviousness compared to higher impervious density, of 1.59 (1.23 –2.05) for a 250 m buffer, of 1.52 (1.22 –1.90) for a 500 m buffer, of 1.26 (1.03 –1.55) for a 1000 m buffer and of 1.01 (0.81 –1.25) for a 5000 m buffer. When stratifying for the degree of urbanization the association between imperviousness and IgG-seropositivity was significant for the urban subgroup and the 100 m buffer only (OR 1.60, 95%-CI 1.05 –2.44).
Conclusion
Our findings of possibly adverse effects of less imperviousness (in a 100 m buffer) contrast with the potentially beneficial effects of green spaces, e.g. on mental health.

Keywords

Borrelia burgdorferi, vectors, impervious density, NAKO, seroprevalence

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Yes, I am a Junior Scientist.

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