

Puumala orthohantavirus monitoring in bank voles to assess the epidemiological situation in Germany

Inhalt

Puumala orthohantavirus (PUUV) causes more than 80% of human hantavirus disease cases in Germany. The incidence of human cases depends on the abundance of the natural reservoir, the bank vole (*Myodes glareolus*) and its PUUV prevalence. The objective of our study within the research consortium "RoBoPub" (Rodent-Borne-Pathogens-and-Public-Health) is a further characterization of the PUUV range in Germany. For that purpose, bank voles were trapped along transects in North Rhine-Westphalia/Lower Saxony, within Thuringia and Bavaria.

Between 2018-2021 3,320 bank voles were collected and screened for PUUV-specific RNA and antibodies. While in spring the average PUUV prevalence was low to moderate (16%) in non-outbreak years, high values were reached (up to 92%) in outbreak years 2019 and 2021. The investigation in Lower Saxony confirmed the distribution border reaching from district Grafschaft Bentheim to district Osnabrück in the northwest of Germany. In Thuringia, PUUV occurrence in bank voles was rare and strongly restricted to certain areas in forests of the northwest and southwest. Data from Bavaria suggest the absence of PUUV within the central region despite its widespread presence in Bavaria's north and east.

Future investigations have to identify reasons for the heterogeneous PUUV distribution in Thuringia and Bavaria. The identification of PUUV endemic regions based on reservoir screening, will help to establish geographically specified risk assessments for the public.

Keywords

Puumala orthohantavirus, bank vole, reservoir, prevalence

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