Assessing the presence of the zoonotic variegated squirrel bornavirus 1 (VSBV-1) in captive Sciurids in Germany by a cross sectional study

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VSBV-1 has so far been found in five species of two subfamilies of Sciuridae. Affected animals were born in captivity and belonged to private and zoological holdings in Europe, primarily Germany. Sciurids are suspected to serve as reservoir hosts. In humans, VSBV-1 can lead to severe, often fatal meningoencephalitis. Four cases with lethal outcome, one seropositive survivor and two possible lethal cases have been reported so far.

Objective of this cross-sectional study is estimating the VSBV-1-prevalence in captive Sciurids in Germany. A registry on Sciurid holdings was established to define the total population as basis for sampling. Due to scarce knowledge on species-specific susceptibility, the family of Sciuridae was investigated according to the abundance of species in captivity. Diagnostics were performed on buccal swabs and fecal samples by RT-qPCR.

Between 2014 and 2016, 25 VSBV-1-positive squirrels in nine different German holdings were identified. Despite continuous sampling, no additional cases were detected thereafter.

Euthanasia of VSBV-1-positive animals and follow-up-monitoring of affected holdings likely contributed to the reduction of the incidence. As no comprehensive sampling of holdings has been conducted, single positive animals may have remained undetected. Furthermore, false-negative results due to possible intermittent excretion of viral RNA cannot be excluded.

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