P2-05

Isolation of *Francisella tularensis* from mandibular lymph nodes of red foxes indicates active natural foci in Austria

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Aims: The aim of this study was to clarify whether the red fox (*Vulpes vulpes*) could be an appropriate indicator for active endemic regions, since this predator covers a large area and prefers preying on European brown hares (*Lepus europaeus*).
Methods: 669 red foxes from 6 districts in well-known endemic regions in the north-eastern part of Austria were provided for the study between June 2007 and March 2009, in line with the rabies abatement program. A selective agar medium was inoculated with a section plane of the mandibular lymph nodes and incubated for 7 days. Identification and characterisation of the isolates was done by standard bacteriological methods.
Results: In autumn/winter of the years 2007/08, 4 out of 51 investigated foxes from Waidhofen/Thaya, where tularemia was detected in 14 brown hares ten years before, showed a positive result in culture. In spring/summer 2008, 1 out of 11 investigated foxes from Mistelbach proved to be infected. In that district *Francisella tularensis* was isolated from 29 brown hares from 1994 until 1998, when two epidemics with 86 reported human cases occured in the north-eastern part of Austria. Furthermore *Francisella tularensis* was isolated from 10 out of 494 investigated foxes in 4 districts of Burgenland from summer 2007 until winter 2009. Altogether 15 strains of *Francisella tularensis* subspecies *holarctica* biovar II could be isolated from mandibular lymph nodes with no visible lesions.
Conclusions: Our findings clearly demonstrate that isolation of *Francisella tularensis* from the mandibular lymph nodes of red foxes with latent tularemia infection can indicate active endemic foci. Besides testing for rabies, additional screening of red foxes for the presence of *Francisella tularensis* should therefore be recommended in endemic regions.