

SHORT COMMUNICATION

Epidemiologic characteristics of tularemia in Slovakia

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Tularemia is a zoonosis with natural focality distributed in geographical regions of the Northern hemisphere. Its actual medical and veterinarian importance being stressed during the last decade by a marked activation of natural foci, accompanied by epidemic occurrence of the disease in humans, recorded in several European countries, for the first time also in the south of this region, as well as by fear of bioterrorism and misuse of the agent of tularemia – *Francisella tularensis* as potential biological weapon.

In Slovakia, tularemia has been known for several decades. First cases of the disease in humans in the endemic region of western Slovakia were recorded in 1936. After the first widespread epidemics in the 60s, studies of epidemiology and ecology of tularemia were initiated in the Institute of Epidemiology of the Faculty of Medicine, Comenius University in Bratislava. Longterm studies contributed to the knowledge on reservoir animals and vectors of *F. tularensis*, on natural foci of different types and on the importance of their surveillance for prognoses of disease occurrence in humans and implementing preventive measures. Particular importance of monitoring the activity of natural foci being stressed also by changes in the epidemiology of tularemia in Slovakia, such as the marked activation of natural foci from 1994, accompanied by epidemics in the endemic region of western Slovakia in the years 1995–1996 and 2002, and by recent isolations of strains of highly pathogenic *F. tularensis subsp. tularensis* (by then known only in North America) in the western region of our territory, for the first time in Europe, where the occurrence of *F. tularensis subsp. palaeartica* has been characteristic.

The trend of morbidity from tularemia in Slovakia has been declining since the epidemics in the 60s. The mean annual morbidity rate declined from 5.5 per 10⁵ population (1960–1969) to 0.9 in the last years (2000–2004) and is markedly influenced by the incidence of tularemia in western Slovakia. Comparison of proportional distribution of tularemia cases notified in this region in the years 1961–2004 according to their sources of infection and routes of transmission showed important changes in the epidemiology of the disease. While in the first period (1961–1980) the most frequent transmission was by direct contact with

infected hares and the proportion of infections was about 60 %, in the second period (1981–2000) the proportion of cases transmitted by other routes increased markedly and in the last period (2001–2004) it reached nearly 90 %, from that 10 % represented by cases transmitted by ticks and other arthropods. The most frequent modes of *F. tularensis* transmission was by handling wild hares, mainly skinning and preparing raw meat of these infected animals for cooking, and via environment – hay, straw and other agricultural products contaminated with excreta and carcasses of infected animals, especially small rodents. Except of typical winter seasonal occurrence of tularemia, corresponding with the hare hunting season, a marked shift to the summer was observed over the last two periods (1981–2000 and 2001–2004). The majority of tularemia cases occurred in following occupational groups: pupils and students, housewives and pensioners, and mainly other occupations.

Changes in epidemiological features of tularemia in Slovakia reflect on the one hand the epizootic situation and activation of natural foci, on the other hand they are attributable to changing social conditions – new technologies in agricultural production, intensive development in economic activities of the rural population (private plant and animal production), gardening, leisure activities in nature, etc. The impaired epidemiological situation in the occurrence of tularemia in the last years is pointing at the importance of systematic surveillance of this infection for epidemiologic prognoses and implementation of preventive measures.

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